

# AUSTRALIAN HYMENOPTERA CHALCIDOIDEA—VII.\*

The Family Encyrtidæ with Descriptions of New Genera and Species.

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## INTRODUCTION.

THIS great group, in the Australian fauna, is very nearly as numerous in species as the Eulophidæ. Five distinct subfamilies are recognised—the Encyrtinæ, the Eupelminæ, the Signiphorinæ, the Taneostigminæ and the Aphelininæ. The latter group in recent years has been placed with the Eulophidæ, untenably so.

From a distance, this is the most unlikable family in the chalcidoid series but close acquaintance reveals so many fascinating qualities that students, after some experience, will no doubt choose it as a favorite. The remarkable diversity in structure, the wonderful color patterns, the unique and odd special structural enormities, the great structural likeness of the members of a genus, the jumping habit, the present uncertainty regarding relationships, the whole diverse and varied panorama is such that the most torpid of interests must finally become conscious of a spell.

The family was to me a "black beast." It had been left until last and finally attacked with the determination born of despair. This was due mainly to my inability to place species in their proper genera and I must confess that for the first three months during which species in this group were steadily described hardly one was placed into its proper genus. My interpretation of a genus became gradually clearer as experience increased and Ashmead's (1904) tables of the Encyrtinæ, formerly thrown aside as worthless, are now accepted in the main as good. The generic differences are smaller than I had thought. Such characters, however, as pubescence, sculpture and wing pattern must be ignored as regards genera.

The genus *Eupelmus* is large. Ashmead's table of the Eupelminæ must be condemned; it is based, in this instance, upon too trifling characters—pubescence on the eyes and the incisions of the caudal margins of the abdominal segments are highly variable characters; some of the language used is misleading; a number of the genera must fall as synonyms.

In some of the encyrtine genera, it is extraordinary that two species may occur which are alike in every detail except for some structural characteristic easily overlooked; for example *Baoanusia magniclava* and *B. persimilis*; in the latter, the axillæ are a little separated while in the former they are joined and with the usual carina between them.

The family is open to philosophical treatment of the highest order.

## SUBFAMILY EUPELMINÆ.

Many of the genera in this group have been founded upon two variable characters and Ashmead's table of genera, as stated before, is very poor. It is surprising that the antennæ have not been used more for principal divisions. Some of the genera, apparently, do not possess these organs for all we know to the contrary.

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## GENUS EUPELMUS Dalman.

Where ring-joint is mentioned funicle 1 is intended, this joint often ring-like. The species may have one or two spurs on the caudal tibiæ. The axillæ are separated yet rather close together.

**1. EUPELMUS VARICOLOR** (Girault). Genotype of *Episolidelia* Girault.

Length, 2.10 mm., excluding extruded part of ovipositor which is two thirds or more the length of the abdomen.

Bright metallic green, the conic-ovate abdomen golden yellowish and with a metallic green dorso-lateral stripe down each side for proximal two thirds, its dorsal base also somewhat metallic. Antennæ black, the ring-joint and tip of pedicel whitish, the third funicle joint longest, subequal in length to the pedicel. Legs lemon yellow, the coxæ black except at tip, the intermediate tibiæ ringed with black a short distance below the knees, the intermediate femora with a black spot above on one side, the same distance before the knees. Wings hyaline. Ovipositor valves white, broadly black at base, narrowly brown at tip, the brown tip about half the length of the black proximal portion. A yellow stripe down each side of the thorax, broader cephalad. Head and thorax polygonally reticulated. Scape black. Ring-joint somewhat wider than long; funicle 1 somewhat longer than wide, 3 longest of the funicle. Hind tibial spur single. Mandibles tridentate. Front femur stout. Type re-examined.

Described from one female captured by sweeping miscellaneous vegetation in forest, December 5, 1912 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2826, Queensland Museum, Brisbane, the specimen on a card point plus a slide bearing an antenna and one of each pair of legs.

**2. EUPELMUS VULGARELLUS** new name.

*Idoleupelmus vulgaris* Girault, 1913, p. 94.

*Eupelmus vulgaris* (Girault), preoccupied.

*Female*:—Length, 4.50 mm., excluding the extruded portion of the ovipositor which is as long as the abdomen and yellowish white except broadly at base and tip.

Bright æneous green, the wings hyaline, the legs and tegulæ lemon yellow (except the coxæ, a dusky brownish spot above before apex on hind femur, one just below knee and another just ventrad of the first and a spot on same place on middle femur, a ring around middle tibia just out from the knee). Sides and venter of abdomen yellow. Head and thorax very finely shagreened. Antennæ 13-jointed, no ring-joint, the club 3-jointed; pedicel rimmed with whitish at apex, the first funicle joint similarly rimmed at base. Postmarginal vein longer than the stigmal. Prepectus golden yellow.

*Habitat*: Gordonvale (Cairns), Queensland. Forest, May 3, 1913.

*Type*: No. Hy 2827, Queensland Museum, Brisbane, the female on a tag, the head and hind legs on a slide.

**3. EUPELMUS AUSTRALIENSIS** (Girault). Female.

*Idoleupelmus australiensis* Girault, 1913, pp. 94-95.

Length, 1.20 mm. Same as *vulgaris* but much smaller and the valves of the ovipositor are wholly black, the hind legs lack the black spots.

Antennæ 13-jointed, inserted just below the ventral ends of the eyes, the first funicle joint minute, white, not a true ring-joint, 2 twice longer, 3 still longer, quadrate, the following joints longer, all much shorter than the pedicel. Mandibles tridentate. Middle tibiæ without black teeth, with scattered light ones. Abdomen mostly yellowish above.

*Habitat*: Gordonvale (Cairns), Queensland. Forest, April 4, 1913.

*Type*: No. Hy 2828, Queensland Museum, Brisbane, two females on separate tags.

**4. EUPELMUS GROTHI** new species. Female; male.

Length, 3.20 mm., excluding extruded ovipositor which is white and not quite as long as the abdomen.

Metallic æneous green, the abdomen, axillæ and scutellum burnished purplish coppery. Legs concolorous except the articulations and the tips of tibiæ which are yellowish brown, the tarsi whitish. Fore wings with a narrow, rather indistinct brownish line across it at base of marginal vein, more obscure centrally. Ovipositor valves black at base. Scape metallic green; rest of antenna black. Hind tibia with only one spur. Antennæ 13-jointed with one quadrate ring-joint; funicle 1 longest, subequal to pedicel, over twice the length of the ring-joint, the distal funicle joint plainly wider than long.

*Male*:—The same but the wings hyaline, the antennæ and legs yellow, the hind femur within with a midlongitudinal, elliptical fuscous marking. The distal funicle joint is only slightly longer than wide, the antennæ 10-jointed excluding the club, the ring-joint present. The abdomen as in *Anastatus*.

*Habitat*: Port Darwin, Northern Territory. Parasitic upon the eggs of mantids in forest.

*Types*: No. *Hy 2829*, Queensland Museum, Brisbane, one male, four females on tags (two pins).

Dedicated to Hugo Grotius.

**5. EUPELMUS ANTIPODA** Ashmead. Female.

Length, 3 mm. Head metallic green, thorax bottle blue, mesopleura with a greenish tinge; abdomen æneous black; ovipositor prominent, yellow for two thirds its length; wings fuscous except at proximal third which is hyaline; all coxæ metallic green; sutures of trochanters, tips of tibiæ and tarsi yellowish white; rest of legs æneous black.

*Habitat*: Sydney, New South Wales. Mantid eggs.

*Type*: Catalogue No. 4894, United States National Museum, Washington, D.C., U.S.A.

Cameron (1911, pp. 651-652) gives Sydney and Darrigo, New South Wales, September. And also "This appears to be a variable species as regards colouration: Some specimens have more of the green tint than others; the blue merges into violaceous, and there may be brassy tints. The male is green with brassy tints, and, on the metanotum, the green merges into violaceous, the antennal scape and four front legs are yellow tinged with fulvous, especially on the femora; the hind legs are coloured as in the female, except that the femora are green for the greater part; and the tibiæ are not so deeply black, while their base may be testaceous. The color of the wings varies, some having the fuscous tint on the apical two-thirds much lighter than the others; in the males they may be almost hyaline."

Which part of the ovipositor is yellow?

**6. EUPELMUS TESTACEIVENTRIS** Cameron. Female.

Length, 2 mm.; length of terebra 5 mm. (?)

Blue with brassy tints on the base and sides of mesonotum; scape dark green, flagellum black; third and following segments of abdomen dorsad and all ventrad yellowish testaceous; sides of third segment blue, base of 1 yellow, ventral keel black; extruded part of ovipositor about half the length of the abdomen, its proximal third black, the rest yellow; legs pale straw yellow; coxæ blue to near apex; apex of tarsi black. Wings hyaline, the venation straw yellow.

Face finely, closely aciculated; malar suture distinct, curved. Palpi pale testaceous; scutum closely, finely, almost transversely striated, the middle lobe clearly separated, longer than wide at base, the apex broadly rounded, the lateral lobes with a distinct transverse furrow

at base, the middle one surrounded by a wide furrow which is widest at the apex where it is transverse. Scutellum pyriform, roundly narrowed to a blunt point cephalad. An irregular black spot near apex of middle femur, a more distinct line or band near base of middle tibia and a broad black line on either side of the basal half of hind femur; hind tibiae infuscated at base. Allied with *Eupelmus antipoda* Ashmead.

*Habitat*: Boggabri, New South Wales. Associated with the fruit of grasses. January.

*Types*: Query.

#### 7. *EUPELMUS BURMEISTERI* new species.

*Female*:—Length, 1.65 mm., excluding the ovipositor which is extruded for a third the length of the abdomen.

Dark metallic green, the first funicle joint white, the wings hyaline; not quite distal two thirds of extruded valves of ovipositor soiled white. Thorax and abdomen finely scaly. Funicle 2 a little wider than long, 4 longest yet scarcely longer than wide. Antennae and coxae concolorous. Legs golden yellow; middle femur with a dusky band just proximad of knee; middle tibia with one just distad of knee (both separated from the knee, however). First femur centrally washed with metallic green. Axillae not approximate yet not much separated. No conspicuous pubescence on thorax. Teeth on middle tarsi not black. Hind tibial spur single. First femur simple. Postmarginal vein longer than the stigmal. Hind femur proximad sub-metallic. Ovipositor valves slightly black at tip.

Described from two females on slides in the collections of the Queensland Museum, Brisbane, labelled "Among grass and herbage, March 29, April 8, 1913. H. Hacker."

*Habitat*: Brisbane, Queensland. Forest.

*Types*: No. Hy 2830, Queensland Museum, Brisbane, a female on a slide.

Dedicated to Hermann Burmeister.

#### 8. *EUPELMUS RENANI* new species.

*Female*:—Length, 1 mm., excluding extruded portion of ovipositor which is only one third the length of the abdomen.

Agrees with the description of *Anastatus pax* (Girault) but much smaller and funicle 2 is short, smaller than the pedicel, about a third of its length, the pedicel much longer than any of the funicle joints of which 4 is largest, a little longer than wide. Moreover, the color is dark metallic green, the extruded valves of ovipositor, the antennae and legs concolorous. Body finely scaly. Axillae distinctly separated, but not much. Fore wing lightly infuscated to apex from about the middle of the marginal vein.

From one female caught by sweeping *Leptospermum*, April 16, 1913 (H. Hacker).

*Habitat*: Brisbane, Queensland.

*Type*: No. Hy 2831, Queensland Museum, Brisbane, the body (minus wings) on a tag, the head on a slide.

Dedicated to Ernest Renan.

#### 9. *EUPELMUS MONTAIGNEI* new species.

*Female*:—Length, 1.50 mm., exclusive of ovipositor whose extruded portion is a third the length of the abdomen.

Similar to *masini* but the antennae wholly concolorous, the intermediate femur and tibia immaculate, the first femur only very lightly washed with metallic, the legs pale lemon yellow except coxae and lightly, cephalic femur. Postmarginal and stigmal veins shorter, subequal. Distal fourth of ovipositor distinctly black, longer than the black proximal portion. Mesopleurum suffused with brownish. Body finely scaly. Teeth on middle tarsi black.



From one female caught by sweeping in forest, January 6, 1914.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2832, Queensland Museum, Brisbane, the specimen on a tag.

Respectfully dedicated to the French essayist.

#### 10. EUPELMUS PUDICUS new species.

*Female*:—Length, 1.25 mm. exclusive of ovipositor.

Like the preceding but funicle 1 white, proximal half of scape also; femora, tibiae and tarsi lemon yellow; proximal fourth of ovipositor white, rest black, the extruded portion somewhat shorter. Funicle 4 plainly longer than wide yet not much more so. Postmarginal and stigmal veins not seen. Pedicel a little longer than funicle 4, not elongate.

From one female taken by sweeping forest, April 10, 1913.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2833, Queensland Museum, Brisbane, the female on a tag; head and hind leg on a slide.

#### 11. EUPELMUS COMPRESSICAUDA new species.

*Female*:—Length, 2.10 mm., exclusive of extruded portion of ovipositor which is as long as the slender abdomen.

Long and slender, the abdomen acuminate and longer than the rest of the body, the exerted portion of ovipositor black,\* the valves compressed, their tips silvery white. Wings hyaline. Dark metallic blue, the knees, distal third or more of tibiae and the tarsi pale straw yellow. Teeth of middle tarsi colored like the tarsi. Hind tibial spur single. Scape subcompressed; funicle 1 distinctly longer than wide, longer than 8 which is quadrate, shorter than the pedicel, the latter only slightly longer than funicle 2 which is longest, somewhat over twice longer than wide; 3 somewhat shorter than 2; 4 still shorter yet somewhat longer than 1. Mandibles tridentate. Thorax and abdomen finely scaly; segments 2 and 3 of abdomen deeply incised at meson of caudal margin, the next three segments much less so, 2 and 3 rather long. Postmarginal vein longer than the stigmal. Scutellum rather narrow, declivous, the axillae slightly separated inwardly, their meso-caudal sutures very faint, the axillae barely defined.

From one female caught by sweeping in jungle, April 16, 1913 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2834, Queensland Museum, Brisbane, the female on a tag, the head and a fore and hind leg on a slide.

#### 12. EUPELMUS FIELDINGI new species.

*Female*:—Length, 1.80 mm., exclusive of ovipositor which is extruded for a length equal to two thirds that of the abdomen.

Like the preceding but dark metallic green, the abdomen normal, the normal valves of ovipositor not so long and the middle tibia is wholly pale yellow; also funicle 1 is wider than long, the body is much shorter. Hind tibial spur single. Scape very slightly flattened; pedicel a little longer than funicle 2 which is longest, 3 slightly shorter than 2, 8 quadrate. Postmarginal vein short, a little longer than the stigmal. Axillae separated but not very widely. At least segments 2-4 of abdomen incised at meson of caudal margin. Whole body densely scaly. Axillae well defined, the scutellum not declivous.

From one female taken by sweeping in forest, November 13, 1912.

*Habitat*: Proserpine, Queensland.

*Type*: No. Hy 2835, Queensland Museum, Brisbane, the female on a tag; antenna and hind tibia on a slide.

Dedicated to Henry Fielding.

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\* Meaning the valves; the color of the ovipositor itself is always brown.

**13. EUPELMUS LAVOIRSIERI** new species. Female.

Like *grayi* but the middle white part of the valves of the ovipositor is smaller, distinctly shorter than the proximal black part which is only slightly shorter than the distal black portion (in *grayi* the middle white is distinctly longer than the proximal black). Funicle 1 is a little wider than long. The first two or three segments of abdomen, at least, incised at meson of caudal margin.

From one female caught in forest, November 3, 1912.

*Habitat*: Proserpine, Queensland.

*Type*: No. Hy 2836, Queensland Museum, Brisbane, the female on a tag, an antenna and hind tibia on a slide.

**14. EUPELMUS LONGICORPUS** new species.

*Female*:—Length, 3.50 mm. Shaped like *motschulskini* Girault.

Dark metallic green, the wings hyaline, the coxæ and sides of cephalic femur laterad (exteriorly) concolorous; rest of legs yellowish brown. Ovipositor distinctly but shortly exerted (a sixth or less the length of the abdomen), a little over proximal half of the exerted part white, rest concolorous. Postmarginal vein only slightly longer than the stigmal. Funicle 1 a little wider than long, 2 much longer, over thrice longer than wide, a little the longest, 3 and 4 somewhat shorter than it, longer than the pedicel which is subequal to 6. Hind tibial spur single. Vertex broad. Axillæ just separated at meson. Sculpture as in the scutum of *worcesteri*, the pronotum, abdomen and head scaly punctate like the scutum. Segments 2-6\* incised at meson, the incisions lessening in succession caudad. Ridges of scutum pubescent.

From one female taken in forest, March 21, 1913.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2837, Queensland Museum, Brisbane, the female on a tag; antenna and a hind leg on a slide.

A second female, same place on April 4.

**15. EUPELMUS AUSTRALIS** new species.

*Female*:—Length, 2 mm., exclusive of ovipositor which is extruded to a length equal to that of the abdomen.

Similar to *australiensis* but much more robust and only the side of the abdomen centrally is golden yellow. Also funicle 1 is a little wider than long, 2 quadrate, 3 somewhat longer than wide. Prepectus golden yellow. Legs except coxæ bright golden yellow, the two spots on middle legs distinct.

From one female caught in forest, April 20, 1913.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2838, Queensland Museum, Brisbane, the female on a tag.

**16. EUPELMUS GREELYI** new species.

*Female*:—Length, 2.10 mm., excluding ovipositor which is extruded for a length a little exceeding that of the body.

Colored like *varicolor* Girault but the marginal stripe of abdomen is somewhat longer, the legs are all pale yellow except the concolorous coxæ. Middle tibiæ, however, with a more or less obscure metallic dot just below knees, outwardly, the middle femur with one just above knees. Extruded valves of ovipositor black, whitish rather obscurely on second fourth.

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\* Of abdomen.

Prepectus yellowish white. Axillæ a little separated. Thorax scaly. Postmarginal vein somewhat longer than the stigmal, both well developed. Funicle 1 white, quadrate, 2-4 longest, each a little shorter than the pedicel, distinctly longer than wide; funicle 8 a little longer than wide.

From one female caught by sweeping along a jungle path, February 23, 1912.

*Habitat*: Rossville (Cooktown), Queensland.

*Type*: No. *Hy* 2839, Queensland Museum, Brisbane, the female on a tag; head on a slide.

Dedicated to A. W. Greely.

#### 17. *EUPELMUS LAMBI* new species.

*Female*:—Length, 1.15 mm., the ovipositor barely exerted.

Like *mawsoni* but middles of femora and tibiæ laterad darker except cephalic femur; funicle 1 wider than long, 2 quadrate, plainly not twice longer than wide, subequal to 3, 4 longer than any of the others, a little longer than wide; rest of funicle joints wider than long but 5 somewhat longer than the following. Postmarginal and stigmal veins slender, the former a little the longer. Axillæ distinctly but not very widely separated. Pubescence short, spare, the whole body scaly. Hind tibial spur single. Hind femur all metallic laterad except ends.

From one female caught in forest, December 25, 1912.

*Habitat*: Capeville (Pentland), Queensland.

*Type*: No. *Hy* 2840, Queensland Museum, Brisbane, the specimen on a tag; head and a hind tibia on a slide.

Dedicated to Charles Lamb.

A second female, same place, September 5, 1914 and a third the following day.

#### 18. *EUPELMUS CRAWFORDI* new species.

*Female*:—Length, 1.35 mm., excluding the extruded portion of ovipositor which is as long as a third of the abdomen.

Brown washed with metallic purple, the abdomen honey yellow, the wings hyaline; extruded portion of ovipositor white, black at base, brown at distal fourth, this part longer than the black basal part, the white portion forming over half. Scape and legs pale, the coxæ and femora washed with brownish, rest of antenna brown-black. Ring-joint a little wider than long, the pedicel much longer than any of the funicle joints of which 2 and 3 are longest, subequal, each somewhat longer than wide; funicle 1 one and a half times longer than the ring-joint; distal funicle joint somewhat wider than long. Head and thorax finely scaly reticulate. Axillæ distinctly, moderately, widely separated, the scutellum declivous. Hind tibial spur single. Front femur simple. Postmarginal and stigmal veins subequal, distinctly much shorter than the marginal. Middle tibiæ with black teeth.

From one female caught by sweeping jungle along a forest streamlet, December 2, 1912 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. *Hy* 2841, Queensland Museum, Brisbane, the female on a tag; head and middle legs on a slide.

Respectfully named for J. C. Crawford for his careful work on Chalcidoid Hymenoptera.

#### 19. *EUPELMUS FOLSOMI* new species.

*Female*:—Length, 1.75 mm.

Like *varicolor* Girault but the marginal stripe of abdomen reaches only to middle (sometimes farther), the coxæ nearly all black, the yellow absent on side of thorax, the abdomen not colored at base above and the front femur centrally is broadly concolorous with the body. Postmarginal vein somewhat longer than the stigmal.

From one female caught by sweeping *Leptospermum*, April 16, 1913 (H. Hacker).

*Habitat*: Brisbane, Queensland.

*Type*: No. Hy 2842, Queensland Museum, Brisbane, the specimen on a slide.

Another female by sweeping *Eucalyptus*, April 16, 1913, same place.

Named for Justus Watson Folsom.

## 20. EUPELMUS BAILEYI new species.

*Female*:—Length, 1.87 mm. The same as *folsomi* but the ovipositor a fourth shorter, the marginal stripe of abdomen extending to the anal spiracle or nearly to apex and the proximal half of hind femur is concolorous, the hind knee above is so and a small spot just distad of it on tibia. Also, the spot on middle femur is more elongate than usual; the front tibiæ also have a dusky ring around them just ventrad of knee.

From one female caught by sweeping *Eucalyptus*, April 16, 1913 (H. Hacker).

*Habitat*: Brisbane, Queensland.

*Type*: No. Hy 2843, Queensland Museum, Brisbane, the female on a slide with a female of *folsomi*.

Named for F. Manson Bailey.

## 21. EUPELMUS AUSTRALICUS new species.

*Female*:—Length, 2 mm., excluding exerted portion of ovipositor which is four fifths the length of abdomen and wholly black.

Like *varicolor* Girault but the marginal stripe extends for a little over proximal three fourths, the ovipositor is black, the base of the abdomen lacks metallic coloration to any extent and the sides of the thorax any yellow. The coxæ are wholly concolorous.

From two females caught sweeping undergrowth, mostly *Eucalyptus*, April 16, 1913 (H. Hacker).

*Habitat*: Brisbane, Queensland.

*Types*: No. Hy 2844, Queensland Museum, Brisbane, two females on a slide.

Also one female was caught on Magnetic Island, off Townsville, Queensland, January 9, 1913 (A.A.G.).

## 22. EUPELMUS WORCESTERI new species.

*Female*:—Length, 4.50 mm.

Similar to *motschulskini* but the wings are hyaline, the scape slenderer, the postmarginal vein shorter, the hind tibia concolorous except at tip, body dark metallic green, the scutellum not declivous, the ridges of the scutum less carinated, the axillæ very widely separated, the vertex broad between the eyes, the ovipositor not at all exerted, its tip black, funicles 3 and 4 are longest, 2 a little shorter than either of them, 3 somewhat shorter than the pedicel, 1 distinctly longer than wide, over half the length of 2. Hind tibiæ with one spur (another one seems present but though a little stouter it is no longer than the apical fringes [setæ] of tibiæ and several similar ones occur among those on the opposite side of the spur). Hind margin of segment 2 of abdomen incised but the cut is not deep along the meson like a slit; the next three segments are less and less incised caudad. Scutum and scutellum densely scaly punctate. Rest of body densely scaly. Axillæ small.

From one female caught by sweeping in forest pocket, September 12, 1913 (A. P. Dodd).

*Habitat*: Kuranda, Queensland.

*Type*: No. Hy 2845, Queensland Museum, Brisbane, the specimen on a tag; antenna and a hind leg on a slide.

A second female at Gordonvale, forest, 2,000 feet, June 3 (A. P. Dodd).



**23. EUPELMUS MOTSCHULSKINI** new species.

*Female*.—Length, 4.30 mm. Long and slender. Valves of ovipositor extruded a short distance, distal half whitish.

Dark metallic purple, the antennæ and legs concolorous except the brownish tarsi and tips of all tibiæ; but hind tibiæ at a little over proximal half silvery white. Middle tibiæ with black teeth. Hind tibial spurs double. Scape compressed, the pedicel long but a little shorter than funicle 2 which is longest; pedicel subequal to funicles 3 and 4; funicle 1 small, quadrate, somewhat less than a third the length of 2. Funicle 8 a little wider than long, much longer than 1, not quite half the length of 2. Fore wing infuscated slightly at extreme base and from the bend of the submarginal vein out distad of venation but there are two more or less distinct cross-bands formed by accentuations, one (more obscure) at proximal margin of the infuscation and one in the form of a rectangle from the postmarginal vein and not reaching caudad of the middle of the blade. A clear streak across the middle of the infuscation but obscure. Vertex narrow between the eyes. Scutum pilose. Segments 2-5 of abdomen incised at meson of caudal margin, the abdomen longer than the rest of the body, the incision of segment 2 very deep, of 4 shallow, concave. Abdomen densely scaly, segment 7 longest, somewhat longer than 2. Head and thorax alutaceous. Scutellum declivous. Ridges of scutum carinated.

From one female taken in forest, March 12, 1912.

*Habitat*: Thursday Island, Torres Strait.

*Type*: No. Hy 2846, Queensland Museum, Brisbane, the specimen on a tag; head and hind leg on a slide.

**24. EUPELMUS GRAYI** new species.

*Female*.—Length, 1.50 mm., excluding extruded portion of ovipositor which is a third the length of the abdomen.

Dark metallic blue, the wings hyaline, the knees, middle tibiæ, tips of other tibiæ broadly and the tarsi yellowish white. Teeth on middle tarsi black, middle of valves of ovipositor white, the distal black portion subequal to the white and longer than the proximal black portion. Antennæ wholly concolorous; funicle 1 quadrate, 2 twice longer than 1, distinctly longer than wide, 3 and 4 longest, each slightly longer than 2, a little shorter than the pedicel; distal funicle joint quadrate but larger than 1. Hind tibiæ with but one spur. Front femur not swollen. Postmarginal and stigmal veins short, subequal. Body (wholly) rather coarsely scaly.

From one female captured in forest, January 4, 1914 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2847, Queensland Museum, Brisbane, the specimen on a tag; head on a slide.

Dedicated to Asa Gray.

**25. EUPELMUS MAWSONI** new species.

*Female*.—Length, 2.25 mm.; the ovipositor not extruded.

Dark metallic green, the wings hyaline, the legs golden yellow (except coxæ), obscurely yet distinctly washed with submetallic on the femora and tibiæ (except cephalic tibiæ). Antennæ concolorous; scape compressed; pedicel elongate, longer than any of the funicle joints of which 3 and 4 are longest, 1 a little longer than wide, 2 a little shorter than 3, about twice its own width. Distal two funicle joints plainly wider than long. Middle tibiæ with black teeth; hind tibiæ with one spur. Very finely scaly, the abdomen coarser. Mesopleurum naked. Segment 2 of abdomen deeply incised at meson caudad. Pubescence sparse, white; most of middle tibia except just below knee lemon yellow. Postmarginal vein

distinctly longer than the stigmal, the venation pale, the stigmal vein moderately long; blade of fore wing densely, finely ciliate.

From one female captured in forest, January 4, 1914 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. *Hy* 2848, Queensland Museum, Brisbane, the specimen on a tag; head and hind leg on a slide.

Dedicated to Sir Douglas Mawson.

## 26. *EUELMUS MULTICOLOR* new species.

*Female*: Length, 2.70 mm., excluding extruded portion of ovipositor which is three fourths the length of the abdomen. Abdomen intermediate between *Eupelmus* and *Anastatus* but more like the former.

Metallic purple green, the fore wing deeply embrowned from the bend of the sub-marginal vein distad to apex but distinctly clearer some distance proximad of the apex; pronotum, except lateral margins, scape, legs, ventral face, caudal three fourths of mesopleurum, a line down latero-dorsal aspect of thorax above the tegula, axillæ and cephalic two thirds of scutellum rich reddish brown. Fore wings infuscated above immediate base. Proximal two thirds of distal half of ovipositor white, distal third of the half black, proximal half dusky. Proximal third of abdomen silvery white; also tarsi of middle legs (except the distal black joint) and proximal portion of the proximal joint of each of the other tarsi. Front and hind femora and tibiæ rather strongly compressed, the middle tibiæ with the comblike teeth white. Hind tibiæ with one spur. Pedicel somewhat longer than funicle 4 which is longest, 1 a little longer than wide, 7 and 8 quadrate, two thirds the length of 4, longer than 1; scape slender, antennæ inserted near the clypeus, distinctly below the long eyes which converge, the vertex narrow, the scrobes short, semicircular, not reaching to middle of the face. Axillæ distinctly separated, together with the scutellum densely finely punctate. Scutum and abdomen finely scaly but distad the former glabrous, the cephalic raised, triangular piece sculptured like the scutellum; pronotum finely scaly, also the head. Caudal margins of first two or three abdominal segments slightly incised at meson.

From one female caught in forest, January 4, 1914.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. *Hy* 2489, Queensland Museum, Brisbane, the specimen on a tag; legs and antenna on a slide.

## 27. *EUELMUS CLAUDUS* new species.

*Female*:—Length, 2.60 mm., excluding ovipositor, which is extruded for a length equal to half that of the abdomen.

Varicolored. Very deep orange yellow, the eyes greenish, the second segment of abdomen (or proximal fourth or somewhat more), coxæ, distal third of scape, distal three fourths of pedicel, funicle joints 1 to 6, articulations of the legs, tips of tibiæ and the tarsi silvery white; rest of abdomen honey yellow, the silvery white followed by three cross-stripes of darker yellow, close together; middle of silvery white of abdomen with a rather broad dusky black cross-stripe which is incised at meson of caudal margin. Distal two funicle joints and club jet black. Proximal two thirds of scape yellow, the distal margin of the yellow dusky black and oblique. Distal edge at meson and caudo-lateral portions of propodeum and the scutum (between the "parapsidal furrows" and caudad of the raised triangular piece, the marking longer than wide) metallic green. Somewhat over proximal third and the immediate tip of extruded part of valves of ovipositor black, the intermediate portion yellowish white. Legs concolorous; middle femora and tibiæ with black streaks along margins; caudal femur with the distal edge black; caudal tibiæ dusky, except broadly at tip. Abdomen with a rather large silvery white spot in lateral aspect somewhat distad of middle. Fore wings lightly

embrowned from the origin of the curve of the submarginal vein distad to apex, a darker brown spot under the stigmal vein and a faint, curved, rather narrow, subhyaline cross-stripe from apex of postmarginal vein; also deeper brown transversely from bend of submarginal vein. Postmarginal vein somewhat longer than the stigmal.

Club obelavate; pedicel not long, a little longer than funicle 4 which is longest, somewhat longer than wide; funicle 1 like a ring-joint, much wider than long, 2 a little longer than wide, over two and a half times longer than 1, 5-8 subquadrate; second club joint shortest, much wider than long. Hind tibial spurs double. Head and thorax densely shagreened, the metallic portion of scutum with silvery pubescence. Segment 2 of abdomen rather deeply incised at meson caudad, the next three segments only slightly so. Axillæ separated a very short distance. Fore wings perfect. A silvery streak cephalad on mesothorax dorsad in lateral aspect. Teeth on middle tibiæ not black.

From two females caught in jungle, April 2, 1914.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. *Hy* 2850, Queensland Museum, Brisbane, one a female on a tag; antenna, hind tibia and part of fore wing on a slide.

In the second specimen, the dusky stripe across the silvery base of abdomen was divided along the meson by a narrow silvery space and the yellowish white portion of the ovipositor was much shorter, less than two thirds the length of the black proximal portion (subequal to it in the type).

### 28. *EUPELMUS BABINDAENSIS* new species.

*Female*:—Length, 2 mm., excluding extruded portion of ovipositor which is as long as two thirds of the abdomen's length.

Dark metallic green, the wings lightly stained (yellowish) except near base. Scape, tarsi, tibiæ, second coxæ and femora and hind femora, yellowish brown; knees white, rest of legs concolorous. Cephalic tibia with a concolorous band just below knees, hind femora and tibiæ a little dusky toward base. Abdomen at immediate base dorsad and at base of sides rather broadly, silvery white; somewhat over distal half of ovipositor yellowish white. Hind tibial spurs double, the smaller spur no longer than the apical setæ but stouter. Mandibles tridentate, maxillary palpi black. Pedicel longer than any of the funicle joints of which 4 is longest, four fifths the length of the pedicel, one and a third times longer than wide; funicle 1 quadrate, also 8 but the latter over twice the size of 1. Thorax scaly. Axillæ just separated at meson. Teeth on middle tibiæ concolorous with the legs.

From one female caught by sweeping jungle, February 11, 1914 (A. P. Dodd).

*Habitat*: Babinda, Queensland.

*Type*: No. *Hy* 2851, Queensland Museum, Brisbane, the female on a tag; head and a hind tibia on a slide.

### 29. *EUPELMUS HOOKERI* new species.

*Female*:—Length, 4.50 mm., excluding ovipositor which is extruded for not quite a third of the length of the long abdomen.

Dark metallic green, the abdomen and mesopleurum purple, the fore wings infuscated from the bend of the submarginal vein distad to apex; the infuscation deeper longitudinally a little cephalad of middle from base of marginal vein to apex of stigmal (forming a rather broad longitudinal stripe) and rather broadly across along its proximal margin. Postmarginal vein over twice the length of the stigmal. Legs concolorous except knees, tips of tibiæ, tarsi and intermediate tibiæ which are reddish brown. Tip of ovipositor white, also proximal tarsal joints of middle and hind legs, the proximal joint of the latter twice longer or nearly than the same joint of the middle legs. Ovipositor concolorous except at tip, the long, intermediate portion brownish black. Hind tibial spurs double, distinct. Hind tibia with a rather



broad yellow band somewhat proximad of middle. Funicle 1 a little longer than wide but much smaller than 8 which is quadrate; 2 elongate, longest, five or more times longer than wide, 3 and 4 subequal, each a little shorter than 2, longer than the pedicel; following joints gradually shortening but 7 still longer than wide. Teeth on middle tarsi black, ovipositor horizontal. Abdomen longer than the rest of body, straight, segments 2 and 3 deeply notched at meson of caudal margin, segment 4 slightly so; abdomen scaly reticulate, the head and thorax uniformly more densely so. Axillæ distinctly but not very widely separated. Scutellum longitudinally, finely, lineolated.

From one female taken by sweeping jungle, February 13, 1914 (A. P. Dodd).

*Habitat*: Babinda, Queensland.

*Type*: No. Hy 2852, Queensland Museum, Brisbane, the specimen on a tag; head and hind legs on a slide.

### 30. *EUPELMUS LONGICAUDA* new species

*Female*:—Length, 1 mm., excluding ovipositor which is exerted for a length equal to that of the abdomen.

Dark metallic green, the wings hyaline, the legs pale yellow, the coxæ concolorous at base; funicle 1 suffused with white, wider than long, 2 quadrate, 3 longest, slightly longer than wide, 8 wider than long. Postmarginal vein slightly longer than the stigmal. Proximal fourth and somewhat over distal third of extruded portion of ovipositor concolorous, the remainder white, the distal dark subequal to the white. Scape concolorous. Axillæ slightly separated. Thorax and abdomen finely scaly. Fore femur slender.

From one female caught on mainland, December 24, 1911.

*Habitat*: Double Island (Cairns), Queensland.

*Type*: No. Hy 2853, Queensland Museum, Brisbane, the female on a tag; head, fore and hind legs on a slide.

### 31. *EUPELMUS CHAUCERI* new species.

*Female*:—Length, 4.50 mm., excluding ovipositor which is extruded for nearly half the length of the abdomen.

Very robust. Dark metallic blue, the wings hyaline, the scape, knees, distal half of cephalic tibiae, middle legs except coxæ and the caudal tibiae, rich reddish brown, the knees darker. Tarsi and tip of caudal tibiae yellowish. A little over the distal three fourths of the extruded portion of the ovipositor valves yellowish white, the short proximal part blue. Differs from *babindaensis* in being very much more robust, the hyaline wings and in coloration. Pedicel slightly longer than funicle 3 which is longest, somewhat longer than wide, 2 and 4 nearly as long as 3, 1 a little wider than long; last two funicle joints subequal, each a little wider than long and thrice the size of 1; club short, ovate. Abdomen conic-ovate, produced beneath. Hind tibial spur single; middle tarsi beneath with black teeth. Postmarginal vein slightly longer than the stigmal. Segments 2 and 3 of abdomen deeply incised at meson of caudal margin, 4 much less so, 5 only slightly so; abdomen densely scaly. Axillæ distinctly a little separated mesad. Thorax and head densely scaly. Scrobes deep, triangular, their margins obtuse; a thick ridge between antennæ and separating the scrobes at base. Pubescence not conspicuous.

From one female taken in forest, May 8, 1914.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2854, Queensland Museum, Brisbane, the female on a tag with the type of *babindaensis*.

### 32. *EUPELMUS NELSONENSIS* new species.

*Female*:—Length, 3.50 mm., excluding extruded valves of ovipositor which are a third the length of abdomen, white, a little dusky just before tip, proximal sixth black.



Dark metallic green, the legs and scape yellowish white except cephalic and caudal coxæ, cephalic femur and proximal half dorsad and ventrad of cephalic tibia; caudal femur darker along proximal half. Wings hyaline. Runs to *chauceri* but differs in being not quite so robust, the scutellum is declivous, the legs and scape paler, the venation pale, funicles 2 and 3 are subequal, longest and the caudal femur is not concolorous. Otherwise about the same. Frons broad in both species.

From one female caught in forest, November 30, 1913.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2855, Queensland Museum, Brisbane, the female on a tag with type of *chauceri* and *babindaensis*.

### 33. EUPELMUS LISTERI new species.

*Female*:—Length, 1.30 mm., excluding extruded valves of ovipositor which are about as long as the abdomen, wholly black.

Differs both from *australis* and *australicus* in having the first three funicle joints about subequal and wider than long, 4 longest and from *australicus* in having only the side of the abdomen golden yellow, the dorsum and venter washed with metallic green, the yellow showing through and on proximal third there are about three dusky cross-stripes. In *australis*, the abdomen is dark metallic green except the sides rather narrowly. Prepectus golden yellow in all three species.

From four females caught by sweeping sand-ridges near coast, May 15, 1914 (A. P. Dodd).

*Habitat*: Chindera (Tweed River), New South Wales.

*Type*: No. Hy 2856, Queensland Museum, Brisbane, two females on a slide with the type of *burmeisteri*.

Dedicated to Joseph Lister.

### 34. EUPELMUS SCUDDERI new species.

*Female*:—Length, 1.40 mm., excluding extruded valves of ovipositor which are a third the length of abdomen and with the middle white portion longer than the two black portions.

Runs close to *folsomi* but differs in that the abdomen is margined along proximal three fourths, crossed on the distal half of dorsum by three dusky stripes, the first short at middle; also the hind tibia bears a spot dorsad below knee, the hind femur distinctly concolorous along proximal two thirds ventro-laterad and the cephalic tibia bears also a spot below knee dorsad. Otherwise the same. Prepectus concolorous in both species.

From one female caught in forest, May 15, 1914 (A. P. Dodd).

*Habitat*: Chindera (Tweed River), New South Wales.

*Type*: No. Hy 2857, Queensland Museum, Brisbane, the female on a slide with type of *folsomi*.

Dedicated to Samuel Hubbard Scudder.

### 35. EUPELMUS BRUNNELLA new species.

*Female*:—Length, 1.90 mm., exclusive of ovipositor which is extruded for about a third the length of the abdomen.

Runs to *crawfordi* but differs in that the abdomen is concolorous (*i.e.* brown), the legs all pale yellow except cephalic coxa and femur, the body more robust, the head, scutum and scutellum (sometimes the entire thorax) dark metallic (the scutellum declivous in both species), the fore wing is stained yellow under all of marginal vein, the funicle joints are all slightly longer, the pedicel also. Postmarginal vein a little shorter than the stigmal. Otherwise the same. Compared with type of *crawfordi*. Hind tibial spur single.

From two females caught in jungle, January 15, 1914 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2858, Queensland Museum, Brisbane, the female on a tag with the type of *crawfordi*.

**36. EUPELMUS ARGENTINOTATUS** new species.

*Female*:—Length, 1.80 mm., exclusive of extruded valves of ovipositor which are two-thirds the length of the abdomen, dusky at tip, proximal two thirds purple, rest white.

Runs to *babindaensis* but a little over proximal half of scape is concolorous, its distal third or more, the pedicel and funicle 1 silvery white; the cephalic tibiae are concolorous (in both species) just below knees.

From one female caught in jungle, May 2, 1914 (A. P. Dodd).

*Habitat*: Tweed Heads (Tweed River), New South Wales.

*Type*: No. Hy 2859, Queensland Museum, Brisbane, the specimen on a tag; hind tibia, antennæ and a fore wing on a slide with type of *longicarpus*.

**37. EUPELMUS DUMASI** new species.

Similar in all respects to *renani* but the wings are hyaline, all the tibiae pale, the femora dusky (washed lightly with metallic) and funicle 2 is a little the longest, 3 and 4 subequal, each a little longer than wide, a little shorter than 2.

From two females caught in forest, January 6, 1913.

*Habitat*: Capeville (Pentland), Queensland.

*Type*: No. Hy 2860, Queensland Museum, Brisbane, two females on a tag with type of *renani*, two heads on a slide.

Dedicated to Alexandre Dumas, père.

**38. EUPELMUS PAGANUS** new species.

*Female*:—Length, 2 mm., the ovipositor not extruded, the abdomen conical, distinctly longer than the thorax. Slender.

Runs to *worcesteri* and resembles that species in all respects yet not half as large, the pale parts of the legs are silvery white, funicles 1 and 2 are wider than long, 4 longest (3 a little the longest in *worcesteri*) yet only a little longer than wide, distinctly shorter than the pedicel. Both species are exceptional in having the ridges of the scutum subobsolete and the axillæ widely separated. Hind tibial spur single.

From one female caught by sweeping in forest, November 8, 1913.

*Habitat*: Stewart's Creek, Queensland.

*Type*: No. Hy 2851, Queensland Museum, Brisbane, the female on a tag with type of *worcesteri*; head and a hind leg on a slide with type of *dumasi* Girault.

**39. EUPELMUS CHARITOLOPHOIDES** new species.

*Female*:—Length, 2.50 mm., the ovipositor not extruded, slightly (not distinctly) pale at tip.

Runs closest to *worcesteri* and resembles that species in thoracic structures. Wings subhyaline. Dark metallic purple, the abdomen green, the mesopleurum and hind coxæ dark blue. Scape except slightly at tip above, tarsi, tip of fore tibiae and rest of legs except coxæ, reddish brown. Middle tibial spur white, middle tarsi with black teeth beneath. Caudal margins of segments 2 and 3 of abdomen distinctly incised at meson, 4 slightly so, others straight, entire. Funicle 1 longer than wide, 2 longest, somewhat longer than wide and barely longer than 3 or 4, shorter than the pedicel, 7 and 8 a little wider than long. Venation dusky,

the postmarginal vein somewhat longer than the stigmal, the latter curved, not especially short. Head and thorax coarsely scaly, nearly scaly-punctate, the abdomen coarsely scaly. Lateral ocelli their own diameter from the eye margins. Segment 2 of abdomen short. Caudal tibial spurs double, one spur no longer than the apical setæ yet stouter. Antennæ inserted about in the middle of the face.

From one female caught in jungle, July 11, 1914.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2852, Queensland Museum, Brisbane, the specimen on a tag.

#### 40. *EUELMUS ALBIPES* new species.

*Female*:—Length, 2 mm., excluding the extruded valves of ovipositor which are as long as the abdomen.

Runs to *crawfordi*. Brown, the scutum metallic green. Differs from *crawfordi* in that the valves of the ovipositor are distinctly longer, the legs are silvery white except the caudal coxæ and the abdomen is concolorous with rest of the body. Also the scape is brown and the scutellum is not declivous. The single specimen had the abdomen so much compressed as to form a line from dorsal aspect. Otherwise like *crawfordi*.

From one female caught April 1913, in forest.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2863, Queensland Museum, Brisbane, the specimen on a tag with type of *crawfordi*.

#### 41. *EUELMUS AURIVENTRIS* new species.

*Female*:—Length, 1.60 mm., excluding ovipositor which is extruded for nearly two thirds length of abdomen, yellowish white, black only at base, dusky at extreme tip.

Runs close to *testaceiventris* Cameron. Æneous purplish, the wings stained yellowish, the abdomen and legs bright golden yellow. Coxæ, cephalic femur, cephalic tibia at proximal half, a round spot on each side of middle femur some distance before knee, a distinct ring around middle tibiæ a short distance out from knee and a marginal dot on abdomen at base, dark metallic green. Tip of scape, pedicel and funicle 1 silvery white; funicle 1 subquadrate, 4 nearly twice longer than wide, longest, over twice the length of 1 which is smallest. Pedicel a little longer than funicle 4. Scape compressed. Funicle 2 nearly twice longer than 1, shorter than 3. Body finely reticulated.

From two females caught January 23, 1913. Forest.

*Habitat*: Townsville, Queensland.

*Types*: No. Hy 2864, Queensland Museum, Brisbane, the two females on a tag, their heads on a slide.

#### 42. *EUELMUS SOROR* new species.

*Female*:—Length, 2.05 mm., excluding ovipositor which is a little longer than the slender abdomen.

Runs to *australiensis* differing from that species in being more robust and the abdomen is wholly golden yellow except at base above for a short distance (the dorsum washed with metallic in *australiensis*); also funicle 3 is distinctly longer than wide, 2 slightly longer than wide, 4 longest, longer than 3. Differs from *australis* in not having the abdomen nearly wholly dark metallic green and *australicus* in not having the abdomen margined with metallic green, funicle 4 is longest and so on. Differs from *listeri* in the color of the abdomen and the longer and more unequal proximal funicle joints. Funicle 4 somewhat shorter than the pedicel which is white at apex, together with funicle 1, the latter a little wider than long. Scape compressed a little. A narrow line of yellow down side of thorax from and including

the prepectus. Spots of middle femur ventrad. Funicles 2 and 3 subequal, each a little longer than wide, 1 distinctly shorter than either.

From one female caught in forest, January 23, 1913.

*Habitat*: Townsville, Queensland.

*Type*: No. Hy 2865, Queensland Museum, Brisbane, the specimen on a tag; head on a slide with type appendages of *E. auriventris*.

#### 43. EUPELMUS PACHYSCAPHA new species.

*Female*.—Length, 1.70 mm., excluding ovipositor which is black and extruded for a length equal to three fourths that of the abdomen, the valves minutely densely feathery.

Dark metallic blue, the tarsi and tips of tibiae white, the abdomen pale yellowish brown washed with metallic purple along the distal half dorsad and along the lateral aspects, the form slender and like that of *australiensis*. Fore wings with a midlongitudinal dusky rather narrow stripe from apex to a point about opposite apex of the submarginal vein, otherwise hyaline, the venation very pale. Scape greatly, foliaceously flattened, rectangular, the flagellum subclavate, the funicle joints all cupshaped and wider than long, larger distad, all smaller than the small pedicel which is hardly longer than wide. Postmarginal vein longer than the stigmal.

Described from one female captured by sweeping in forest, September 22, 1914.

*Habitat*: Capeville (Pentland), Queensland.

*Type*: No. Hy 2866, Queensland Museum, Brisbane; the above specimen in alcohol with the type of *Atoposoma unguttatipes*.

Of the foregoing species, *worcesteri*, *paganus* and *charitolophoides* probably belong to *Charitolophus* Foerster but do not agree with the diagnosis as given by Ashmead (1904) as regards the insertion of the antennae. It is not safe to trust solely to the following table for species in this genus since the species referred to *Anastatus* may become confused. Tables to both genera should be used conjointly. The species are common in forest grasses.

#### DIAGNOSIS OF THE AUSTRALIAN SPECIES OF *EUPELMUS*.

##### FEMALES.

##### I. Body, excluding appendages, wholly metallic green.

Extruded portion of valves of ovipositor wholly concolorous (if not extruded, tips not white). Compare *paganus*, *charitolophoides* and *pachyscapa*.

Valves of ovipositor not or barely extruded; wings hyaline.

Legs concolorous; very large.

Axillae very widely separated; funicles 3 and 4 longest, 1 longer than wide.

Tips of tibiae brownish . . . . . *worcesteri* Girault.

Only some of the legs more or less concolorous. Of normal size.

Legs golden yellow except coxae, washed obscurely with submetallic on last two pairs of femora and tibiae; scape compressed; pedicel elongate, longer than funicle joints separately; funicle 2 about twice longer than wide; most of middle tibia yellow. Funicle 1 a little longer than wide . . . . . *mawsoni* Girault.

Legs with middle of femora and tibiae darker (except cephalic femora); the same but funicle 2 plainly not twice longer than wide; funicle 1 wider than long, 3 subequal to 2, quadrate . . . . . *lambi* Girault.

Valves of ovipositor extruded for third the length of abdomen. Wings infusate from about middle of marginal vein to apex.

Legs concolorous except tips of tibiae and the tarsi; pedicel much longer than any of the funicle joints of which 4 is longest. Compare *dumasi* . . . . . *renani* Girault.



Extruded portion of valves of ovipositor white at extreme tip only, the valves extruded for some length.

Fore wing infuscated from bend of submarginal vein to apex. Valves of ovipositor a third the length of abdomen.

Very robust. Legs concolorous except knees, tips of tibiae, tarsi and middle tibiae which are reddish brown; hind tibia with a rather broad yellow band somewhat proximad of middle; funicle 2 elongate. Scutellum longitudinally, finely lineolated .. .. . *hookeri* Girault.

Fore wing hyaline. Valves of ovipositor extruded for two thirds or more the length of the abdomen. Not very large.

Long and slender, the valves of the ovipositor compressed, as long as the long abdomen; knees, distal third of tibiae and the tarsi pale yellow; funicle 2 longest, over twice longer than wide, 1 longer than wide .. .. .

*compressicauda* Girault.

Not long and slender, the valves of ovipositor normal, two thirds the length of the abdomen; middle tibiae wholly pale yellow; funicle 1 wider than long .. .. . *fieldingi* Girault.

Extruded valves of ovipositor white distad along much more than extreme tip. (Compare *grotii*, description.)

Fore wings distinctly infuscated.

Infuscation of fore wing along distal two thirds; valves of ovipositor much extruded, two thirds white; tips of tibiae and the tarsi yellowish. Species not very large .. .. . *antipoda* Ashmead

Infuscation of fore wing from bend of submarginal vein distad to beyond venation, the infuscation accented in two places; valves of ovipositor only shortly extruded, white at distal half; legs the same but hind tibiae silvery white along little over proximal half; very large. Funicle 2 long. Frons narrow. Scutellum declivous .. .. . *motschulskini* Girault.

Fore wings hyaline; distal two thirds or more of valves of ovipositor whitish.

Very robust. Scape reddish brown; ovipositor valves extruded for half the length of abdomen; legs concolorous except middle legs, tips of cephalic tibiae, hind tibiae and knees which are reddish brown; tips of hind tibiae and all tarsi yellow. Funicle 2 not long .. .. . *chauceri* Girault.

See description .. .. . *nelsonensis* Girault.

Small. Funicle 1 white; ovipositor valves extruded for a third the length of abdomen; legs golden yellow; a dusky band on middle legs each side of knees; coxae concolorous .. .. . *burmeisteri* Girault.

Extruded valves of ovipositor with an intermediate white portion. Wings hyaline.

Valves of ovipositor extruded for a length equal to that of the abdomen.

Legs pale yellow except coxae at base; proximal fourth and distal two thirds of ovipositor concolorous, the rest white. Funicle 1 wider than long, 3 longest. Small .. .. . *longicauda* Girault.

Valves of ovipositor extruded for not more than a third the length of the abdomen.

Legs pale lemon yellow except coxae and the cephalic femur lightly; distal fourth of ovipositor black .. .. . *montaignei* Girault.

Legs concolorous except knees, middle tibiae, tips of tibiae broadly and the tarsi which are whitish. Distal black portion of ovipositor subequal to the white portion and longer than the proximal black portion .. .. .

*grayi* Girault.

The same but the middle white portion of ovipositor distinctly shorter than the black proximal portion which is but slightly shorter than the distal black portion .. .. . *lavoisieri* Girault.

Extruded portion of valves of ovipositor white at base only. Wings hyaline.

Valves of ovipositor extruded for nearly a third the length of the abdomen, the proximal fourth white. Body small. Legs lemon yellow except coxæ; proximal half of scape and funicle 1 white. Pedicel a little longer than funicle 4 .. *pudicus* Girault.

Valves of ovipositor extruded for only about a sixth of abdomen, the proximal half white. Body large.

Legs brownish yellow except coxæ and sides of cephalic femur. Pedicel shorter than funicle 4 .. .. . *longicorpus* Girault.

II. Body, excluding appendages, brown washed with metallic, the abdomen honey yellow.

Wings hyaline; valves of ovipositor extruded for a third the length of abdomen, white, black at base, brown at distal fourth; scape and legs pale except coxæ and femora. Pedicel much longer than any of the funicle joints. Middle legs all pale .. .. . *crawfordi* Girault.

See descriptions .. .. . *albipes* and *brunella* Girault.

III. Body, excluding appendages, dark metallic green or blue, the abdomen mostly, or with much, yellow. Wings hyaline. Slender, graceful species.

Valves of ovipositor wholly black, plainly not as long as the body. Compare *soror*.

Legs except coxæ lemon yellow; middle femora with a spot above on each side, just before knee; sides and venter of abdomen yellow; funicle 3 quadrate, 1 white (more or less). Middle tibiæ with a spot just below knee .. .. . *australiensis* Girault.

The same but the body stouter, ovipositor valves longer, funicle 3 a little longer than wide; also only the sides of abdomen are yellow .. .. . *australis* Girault.

The same but abdomen margined down each side for proximal three fourths; middle knees with a spot above and below them. Funicle 3 longest, somewhat longer than wide .. .. . *australicus* Girault.

Compare description .. .. . *listeri* Girault.

Valves of ovipositor partly white. Wings hyaline.

Valves of ovipositor extruded for a length equal to that of the body.

Abdomen yellow, margined with metallic along proximal three fourths. A spot above and below middle knees; rest of legs (except coxæ) yellow; valves of ovipositor rather obscurely whitish on second proximal fourth. Prepectus yellowish. Funicle 1 white, quadrate, 2-4 longest. Apex of pedicel white .. .. . *greelyi* Girault.

Valves of ovipositor extruded for a length much less than that of the body.

The valves white centrally. Compare *auriventris*.

Legs golden yellow, the middle knees with a spot above and below them. Coxæ concolorous.

Abdomen yellow, margined along proximal two thirds; a yellow stripe down each side of thorax; ovipositor valves brownish distad, the brown about half the length of the black proximal portion. Valves of ovipositor extruded for two thirds the length of abdomen. Funicle 4 longest .. .. . *varicolor* Girault.

The same, the abdomen margined along proximal half, the thorax wholly metallic, the cephalic femur broadly concolorous centrally, funicle 2 quadrate, 1 white .. .. . *folsoni* Girault.

See description .. .. . *scudderi* Girault.

Legs golden yellow, the caudal two pairs of knees with a spot above and below them. Coxæ concolorous.

Ovipositor as long as the abdomen, the latter yellow along sides and venter. Prepectus yellow; a dusky spot on caudal tibia ventrad of the spot below knee .. .. . *vulgarellus* Girault.

Legs the same but the spot on middle femur is long and there is a spot below cephalic and caudal knees.

Abdomen yellow, margined from base nearly to apex; proximal half of caudal femur concolorous . . . . . *baileyi* Girault.

The valves white along distal two thirds.

Abdomen yellow, blue along sides of segment 3 dorsad and dorsum of segment 2 except at base; legs yellow except coxæ; a spot above and one below middle knees; hind tibia dusky at base and a broad black line on either side of proximal half of caudal femur *testaceiventris* Cameron.

IV. Body dark metallic green, the abdomen marked with white. Scape yellowish white.

Abdomen silvery white at immediate base dorsad and rather broadly so laterad; ovipositor two thirds the length of abdomen, somewhat over its distal half yellowish white; tibiæ, tarsi, middle femur and coxa and caudal femur yellowish brown. Pedicel longer than any of the funicle joints . . . . . *babindaensis* Girault.

See *argentinotatus* Girault.

V. Body, excluding appendages, varicolored. Fore wings infuscated to apex or nearly from bend of submarginal vein.

Metallic purple-green; valves of ovipositor with an intermediate white portion; most of pronotum, scape, legs, ventral face, caudal three fourths of mesopleurum, axillæ and cephalic two thirds of scutellum rich reddish brown. Proximal third of abdomen white. Funicle 4 longest. Immediate apex of fore wing hyaline. See description . . . . . *multicolor* Girault.

Orange yellow; segment 2 of abdomen, coxæ, distal third of scape, distal three fourths of pedicel, funicles 1-6, leg articulations, tips of tibiæ and the tarsi silvery white; rest of abdomen honey yellow; distal two funicle joints and club jet; caudal scutum metallic green. Dorsal edge of caudal femur black. See description . . . . . *claudus* Girault.

#### GENUS ANASTATUS Motschulsky.

Synonyms: *Paraguaya* Girault; *Ooderelloides* Girault.

I thought this genus would prove the same as *Eupelmus* but the shape of the abdomen, though not greatly different, may be constant. The genus may be distinguished from *Eupelmus* by reason of the fact that the abdomen gradually widens nearly to apex and then rapidly narrows to form an obtuse apex. In *Eupelmus*, the abdomen gradually widens from base to about middle or a little distad of middle, then gradually narrows to apex. Also in *Anastatus* the dorsum is usually more depressed, sometimes markedly so. The species often bear bifasciate wings and a silvery band about the base of the abdomen. The ring-joint is really funicle 1; it may be distinctly longer than wide.

#### 1. ANASTATUS PIPUNCULI Perkins. Female.

Length, 2 mm. Head and face reddish purple, the vertex with short black hairs; the face with white, short but conspicuous pubescence; the surface dull, rough with indefinite sculpture. Antennæ subclavate, dark, metallic in some aspects; 13-jointed with one ring-joint. Eyes divergent cephalad, the ocelli in a triangle which is much widest at base, the caudal one near the eye margins. Thorax blackish purple, the mesonotal ridges sharp, parallel, the clothing white and conspicuous and, like the sculpture, very similar to that of the face. Wings fuscous, hairy, a hyaline, hairless, rather narrow, slightly curved transverse band beneath the marginal vein (at about its middle) and a clear space at the base of the wing. Stigmal vein long but shorter than the postmarginal. Hind tibial spurs double, much unequal. Tarsi more or less yellowish brown, the caudal tarsi darker; nearly all of caudal legs blackish, also the middle and cephalic tibiæ, their femora largely dark brown or blackish also. Abdomen purplish black,



depressed at proximal two thirds and with a transverse subbasal white band, the three segments following this subequal. Ovipositor barely exerted. Eyes probably bare. Funicle 1 longest, over twice its own width and longer than the pedicel.

*Habitat*: Bundaberg, Queensland. Parasitic upon *Pipunculus cinerascens*.

*Type*: Query.

**2. ANASTATUS NIGRIPURPUREUS** (Girault). Female. Genotype of *Ooderelloides* Girault.

Length, 3.60 mm. Bluish black, the head and thorax deep blue; tip of ovipositor valves, scape and tarsi whitish; trochanters and tips of tibiae white. Fore wings lightly stained from the base of the marginal vein to apex. Distal two funicle joints wider than long. Stigmal and postmarginal veins subequal, moderate in length. Funicle 2 long, subequal to the pedicel, 1 subquadrate, narrow. Valves of ovipositor slightly extruded. Hind tibial spur single. Cephalic femur somewhat swollen, emarginate ventrad near apex. Scutellum declivous.

*Habitat*: Cairns District, Queensland.

*Type*: No. I. 1272, South Australian Museum, Adelaide.

**3. ANASTATUS PAX** (Girault). Female.

*Ooderelloides pax* Girault.

Length, 4.10 mm. Differs from *nigripurpureus* in that the abdomen is more depressed and somewhat longer, the valves of the ovipositor exerted somewhat farther and wholly black, the scutellum is not declivous and the stigmal vein is slightly shorter, straighter and stouter. Scutellum wedge-shaped, the narrow end cephalad.

*Habitat*: Mount Tambourine, Queensland.

*Type*: No. I. 1273, South Australian Museum, Adelaide.

**4. ANASTATUS SPLENDIDUS** (Girault). Female.

*Ooderelloides splendidus* Girault.

Length, 3 mm. Brilliant metallic blue-green with purplish reflections, the abdomen and mesopleurum coppery, the scape metallic blue, the antennæ black, the legs concolorous, the tips of tibiae and tarsi whitish; extruded portion of ovipositor as long as in *pax*, whitish, its distal third black. Fore wings with a distinct dusky blotch from the marginal and postmarginal veins and slightly beyond (distad), the apex and rest hyaline; the blotch disappears (or nearly) two thirds the way across to the caudal margin, so it is rectangular but irregularly so. Abdomen shaped as in *pax*.

Otherwise as in *nigripurpureus* except that the venation and scutellum differ a little.

*Habitat*: Lawson, New South Wales.

*Type*: No. I. 1274, South Australian Museum, Adelaide.

**5. ANASTATUS COLEOPTERORUM** (Girault). Female.

*Calosoter coleopterorum* Girault.

Length, 4 mm. Metallic blue-black, the wings hyaline, the face with slight metallic green; antennæ and legs black, the tarsi brownish. Densely, finely punctate. Funicle 1 longer than wide, all the funicle joints shorter than the pedicel, 3 and 4 longest, 2 subquadrate, slightly shorter than 3; the distal joint wider than long. Postmarginal and stigmal veins rather long, subequal, the stigmal curved, not half the length of the marginal. Caudal tibiae with two short spurs; cephalic femora somewhat bent, all the legs normal. Abdomen depressed, the ovipositor not exerted.

*Habitat*: Hobart, Tasmania. Reared from wood.

*Type*: No. I. 1276, South Australian Museum, Adelaide.



**6. ANASTATUS FREDERICI** new species.

*Female*.—Length, 3 mm., excluding ovipositor which is extruded for a little over a fourth the length of the abdomen.

Somewhat like *Eupelmus hookeri* but somewhat smaller, the valves of the ovipositor shorter, dusky at tip, black at proximal third, the rest white; the scape is reddish brown; the abdomen is shorter; the postmarginal vein is much shorter, subequal to the stigmal; the middle tibia is a little purplish just below knee; the distal third of caudal tibia is yellowish white; the funicle joints are shorter and the infuscation of the fore wing differs in that the longitudinal deeper infuscation is less distinct. Hind tibial spur single. Funicle 1 quadrate, 2 longest, a little over thrice longer than wide at base, 3 a little shorter than 2, 4 still shorter, somewhat longer than wide, 6 quadrate, 7 and 8 subequal, each a little wider than long. Pedicel somewhat shorter than funicle 2. Segments 2-5 of abdomen incised at meson of caudal margin but obtusely so and not very deeply. Head and body finely scaly, the scutum rather coarsely so (coarser than in *hookeri*); scutellum scaly, not striate as in *hookeri*. Compared with type of *hookeri*. Axillæ separated but not widely so. Frons broad.

From one female taken in forest, May 8, 1914.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2867, Queensland Museum, Brisbane, the specimen on a tag

Also one female same place, April 27, 1914.

**7. ANASTATUS PENTATOMIDIVORA** new species.

*Female*.—Length, 2.95 mm.

Dark metallic purple, the scape rufous, the antennæ otherwise and the legs concolorous. Fore wings sooty from the curve of the submarginal vein distad to end of postmarginal vein, the sooty part bearing two oblique eye-spots, the cephalic one against marginal vein a little beyond its middle, the caudal and opposite one from the caudal margin, both elliptical in shape. Abdomen depressed, narrowed toward base, the caudal margins of segments 2-5 incised at meson, the incision deepest on 2 but not very large. Front femur distinctly swollen; middle tibiæ with strong black teeth. Antennæ 13-jointed, the ring-joint large, funicle 1 longest, over two and a half times longer than wide, 2 a fourth or more shorter, 3 subequal to 2 but a little wider, next joints wider and shorter, the last two funicle joints wider than long; funicle 4 subequal to the pedicel. Club short. Hind tibial spurs double, very unequal, one long, the other very short. Antennæ inserted about on a level with the eyes. Head shagreened, the eyes naked, the lateral ocelli not touching the eyes. A large triangular portion of scutum from meson of cephalic margin (apex caudad) and the scutellum, densely, rather finely punctate; rest of scutum shining but really extraordinarily finely lined. Abdomen very finely scaly. Tip of ovipositor whitish, not exerted.

From three females reared from pentatomid eggs, forest, December, 1913 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Types*: No. Hy 2868, Queensland Museum, Brisbane, three females on a tag; legs and antenna on a slide.

A female was taken in April, type habitat.

**A. ANASTATUS NONEXCISUS** new variety (of *pentatomidivora*).

*Female*.—Like the typical form, the fore wings hyaline rather broadly around the apex but only the caudal margin of segment 2 of abdomen is incised at meson. This margin is white in both.

From one female taken in forest in December.

*Habitat*: Gordonvale (Cairns), Queensland.

**8. ANASTATUS BLATTIDIFURAX** new species

*Female*.—Length, 3 mm.

Dark metallic blue, the abdomen with a white band at apex of proximal fourth; tip of valves of ovipositor white, the valves not exerted. Legs and antennæ concolorous; antennæ 13-jointed with one ring-joint which is a little wider than long; funicle 1 subequal to 2 and 3 and longest, 7 a little wider than long, less than half the length of 1 which is much longer than the pedicel. Hind tibiæ with but one spur, the middle tibiæ with black teeth, the front femur somewhat swollen. Fore wings embrowned slightly at immediate base and distinctly from the bend of submarginal vein to apex, the infuscation interrupted by a rather narrow white curved transverse stripe from about a little distad of the middle of the marginal vein and faded around apex. Thorax very finely scaly. Postmarginal vein much longer than the stigmal. Cephalic half of mesopleurum hairy.

*Male*.—A third smaller and the tibiæ of cephalic legs are pale. The mesopleura bear a femoral furrow, the wings are hyaline, the scutum convex and with complete parapsidal furrows. Antennæ thick, cylindrical, 11-jointed, one transverse-linear ring-joint, the club solid, the first funicle joint a little longer than wide, as long as the scape without its bulla, the scape short.

Described from four males, twelve females labelled "13. Bred from ootheca of cockroach from Queensland (on banana). F. P. Spry. 27-1-05."

*Habitat*: Queensland.

*Types*: No. *Hy* 2869, Queensland Museum, Brisbane, one male, three females on a tag.

Also four females reared from cockroach eggs in the jungle, Gordonvale, October, 1913 (A. P. Dodd) and one female, Stradbroke Island, 5-12-1913 (H. Hacker).

This species is closely allied with *pipunculi* Perkins but the very shortly projecting part of the ovipositor is pure white, the cross-band of the fore wing appears to be distinctly narrower, the face and scutum do not bear conspicuous white pubescence, there is only one hind tibial spur, the fore wing is embrowned under the proximal half of submarginal vein, clear from margin to margin under distal half and the antennæ appear different, since funicle 1 is subequal to 2 and 3 (in *pipunculi* as figured 1 is plainly longer than 2, the latter a little longer than 3). The host is also different.

**9. ANASTATUS INSULARIS** new species.

*Female*.—Length, 1.80 mm., excluding extruded portion of ovipositor which is about a third the length of the abdomen.

Dark metallic purple, the wings a little yellowish, the legs concolorous except tarsi, middle tibiæ except a dusky band below knee and distal half of other tibiæ which together with a band round abdomen just out from base, the pedicel and first two funicle joints, are white. Extruded valves of ovipositor black. Funicle 1 quadrate, small, 2 longest, a little longer than the pedicel, 3 subequal to pedicel, 8 subquadrate, large. Scape obclavate. Hind tibiæ with two spurs, one very short. Thorax with obscure, fine scaliness; caudal half or more of scutum glabrous. Teeth on middle tibiæ white. Fore wings rather slender, the discal cilia very fine and dense; stigmal vein much shorter than the postmarginal, the marginal vein very long, longer than submarginal. Abdomen scaly. Funicle 2 nearly twice longer than wide.

From one female caught in forest, March 12, 1912.

*Habitat*: Thursday Island, Torres Strait.

*Type*: No. *Hy* 2870, Queensland Museum, Brisbane, the female on a tag; head on a slide. Also, a female from Cooktown, Queensland, in March.

**10. ANASTATUS TRICOLOR** new species.

*Female*.—Length, 3 mm., exclusive of ovipositor which is extruded for a length nearly equal to two thirds that of the abdomen.

With the same striking coloration as *Parooderella flavithorax* Girault and Dodd and the same as that species except that the wings are perfect, the ovipositor distinctly extruded, the scape swollen at base and dark metallic green along the proximal half, the rest of it, the pedicel and funicle 1 reddish yellow, funicles 2-5 silvery white; rest of antenna black; scape plainly obclavate. Also, the silvery white band around the base of abdomen occupies a third of the surface (a fourth in *flavithorax*; in both species within this band are two rather small eye-spots of metallic purple, one on each side of meson near base). A little over proximal third and the tip of ovipositor valves metallic purple, the long intervening part honey yellow. Pronotum cephalad with some purple. Funicle 1 a little longer than wide; 2 longest, somewhat over thrice longer than wide, 3 and 4 subequal, each slightly shorter than 2, each distinctly longer than the pedicel, 5 subequal to the pedicel, 8 a little longer than wide. Club distinctly much shorter than the scape. Hind coxæ suffused with purple. Postmarginal vein slightly longer than the stigmal. Immediate base of fore wing and a rather broad cross-stripe from a little over proximal third of marginal vein brownish; a broader cross-stripe from distal fourth of marginal and all of submarginal, sooty black; the rather narrow hyaline band between the two cross-stripes crescentic; the second, black cross-stripe bulges convexly proximad and laterad. Marginal vein much longer than the submarginal. Hind coxa suffused with purplish. Caudal margins of segments 2-5 of abdomen incised at meson. Abdomen transversely scaly; scutellum and axillæ very finely longitudinally lined but at distal third the former transversely scaly; scutum glabrous except the cephalic triangular portion which is densely scaly reticulate (this triangular portion is minute in *flavithorax*). Vertex with a broad purple stripe along the meson. Sides of occiput finely lined; face and vertex polished, lower face mesad of genal suture with scattered thimble punctures. Otherwise as in *flavithorax*.

From one female taken by sweeping in jungle, March 1, 1914.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2871, Queensland Museum, Brisbane, the specimen on a tag.

#### 11. *ANASTATUS BENTHAM* new species.

*Female*:—Length, 2 mm., excluding ovipositor which is extruded for somewhat less than a third the length of the abdomen.

Like *splendidus* except that the middle of the ovipositor (extruded portion) is yellowish white, black at base and tip, the apical black the longer of the two. Axillæ moderately widely separated. Abdomen with a scaly sculpture, the lateral ocelli far from the eyes. Second abdominal segment incised at caudal meson. Distal two funicle joints quadrate. Scutum with the same pubescence. Not compared.

From two females labelled "Brisbane, 10-8-13. H. Hacker" and one female labelled "Brisbane, October, 1911. H. Hacker."

*Habitat*: Brisbane, Queensland.

*Type*: No. Hy 2872, Queensland Museum, Brisbane, the three females on tags (three pins).

Also one female on a slide caught on flowers of *Bækea*, April 22, 1913, H. Hacker.

#### 12. *ANASTATUS RACINEI* new species.

*Female*:—Length, 2.75 mm.

Dark metallic green and agreeing with the description of *blattidifurax* but the scape rufous, the white apex of valves of ovipositor just extruded beyond tip of abdomen and the fore wing pattern differs in that the somewhat curved hyaline band from the marginal vein is distinctly (twice) broader, the apex much clearer, the apical subhyaline portion nearly as broad as the band from the marginal vein. The cephalic third of mesopleura is pubescent. Thorax densely finely scaly-punctate, the pronotum finely transversely lined, the propodeum and



abdomen scaly-reticulate, the caudal margin of the segments of abdomen practically entire, no distinct incision. Pubescence not conspicuous, sparse.

From one female caught by sweeping along a dry forest streamlet, April 15, 1913 (A. P. Dodd).

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2873, Queensland Museum, Brisbane, the female on a tag.

#### A. ANASTATUS RACINEI PRÆCIPUUS new variety.

*Female*:—Exactly like the typical form but the scutellum abruptly declivous (gently sloped in the typical form) and funicle 2 is somewhat longer than 3.

Same locality, April 2, 1913 by sweeping in forest.

*Type*: No. Hy 2874, Queensland Museum, Brisbane, the female on tag with type of typical form.

#### 13. ANASTATUS PASTEURI new species.

*Female*:—Length, 1.65 mm., exclusive of ovipositor which is extruded for a third the length of the abdomen.

Allied colorationally with *Eupelmus claudus*. Orange yellow marked with dark metallic green as follows: Center of vertex, embracing the ocelli; all of scutum except a rather large area latero-caudad (cephalad and a little laterad of the axilla) and a small one cephalo-laterad; all of middle portion of pronotum and mesoventer and all of propodeum. Abdomen metallic purplish, with the silvery white band out from base, the extruded valves of the ovipositor brown along somewhat over proximal third, black rather broadly at tip, the intervening portion soiled whitish. Antennæ black, the scape pale; joints 3-6 of funicle silvery white. Legs dusky, the tibiæ and tarsi white; middle tibiæ with a black ring just below the knees. Fore wings lightly stained and with a distinct subfuscous cross-stripe at the bend of the submarginal vein and a large triangular spot whose apex is hung from the stigmal vein and whose base is a little beyond the midlongitudinal line of the wing; from base to the cross-stripe, the fore wing is hyaline except at immediate base. Hind tibial spur single. Axillæ distinctly separated a short distance. Mandibles tridentate. Scape long, compressed; pedicel a little longer than funicle 4 which is longest, a little longer than wide, 1 somewhat wider than long, 2 barely shorter than 4, subequal to 3, twice the length of 1; funicle 8 slightly wider than long. Post-marginal vein somewhat longer than the stigmal. Thorax scaly.

From one female taken in forest, April 15, 1914 (A. P. Dodd).

*Habitat*: Cloneurry, Queensland.

*Type*: No. Hy 2876, Queensland Museum, Brisbane, the female on a tag; antenna and a leg and a fore wing on a slide with type of *Eupelmus lambi* Girault.

#### 14. ANASTATUS BOUSSINGAULTI new species.

*Female*:—Length, 2 mm., excluding extruded part of ovipositor which is as long as a fourth of the abdomen or less.

Similar to *Eupelmus longicarpus* Girault but much smaller, the middle of the valves of ovipositor white, the small white portion equal to the distal and proximal concolorous portions.

From one female taken in forest, August 1, 1913.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2876, Queensland Museum, Brisbane, the female on a tag; antenna and a hind tibia on a slide.

#### 15. ANASTATUS DARWINI new species.

*Female*:—Length, 0.50 mm., excluding extruded valves of ovipositor which are a third the length of abdomen, white centrally.

Similar to the preceding but the femora are all concolorous (except middle ones which are only so along upper and lower edges) and the cephalic and caudal tibiæ are concolorous at



proximal half. Legs otherwise reddish brown. Scutum with distinct but not dense silvery pubescence. Distal black of ovipositor shorter than the white but longer than proximal black. Also the antennæ differ from those of *boussingaulti* in that the pedicel is subelongate, longer than any of the funicle joints (pedicel much shorter than funicle 2 in the other) while the longest funicle joint (3 or 4) is not as long as with that species. The ovipositor is extruded more, the middle white much longer. Resembles *Eupelmus grayi* Girault but somewhat more robust, *grayi* lacks most of the conspicuous pubescence on the thorax and has the middle femur concolorous, the hind tibia more broadly black and the fourth joint of maxillary palpus is longer.

From two females, October, 1911 (H. Hacker).

*Habitat*: Brisbane, Queensland.

*Type*: No. Hy 2877, Queensland Museum, Brisbane, two females on separate tags; antennæ and hind legs on a slide with type of *boussingaulti*.

#### 16. ANASTATUS ARISTOTELEA new species.

*Female*:—Length, 2.30 mm.

Very similar to *racinei* but the scape is dark metallic like the rest of the antennæ, the proximal margin of the second (distal) fuscous stripe is straight not forming a triangle as with the other species. Funicle 1 somewhat longer than 2 or 3 which are subequal and somewhat longer than the pedicel. Hind tibial spurs apparently as in *pipunculi* Perkins, from which this species differs in having the cross-band of hyaline very nearly as broad as the first fuscous cross-stripe (plainly not so as figured for that species; less so for *racinei*), the stigmal vein is shorter, the pedicel is longer and the base of the wing infuscated; moreover, the apex of the fore wing is clear. Postmarginal vein somewhat over twice the length of the stigmal. Segments of abdomen not excised at meson of caudal margin. Hyaline band of fore wing with its distal margin just missing base of the stigmal vein. Sculpture about as in *racinei*. Ring-joint wider than long.

From one female caught by sweeping in forest, January 4, 1913.

*Habitat*: Capeville (Pentland), Queensland.

*Type*: No. Hy 2878, Queensland Museum, Brisbane, the female on a tag; antenna, fore wing and a hind tibia on a slide.

Several more females same place, September 22, 1914. A common species.

#### 17. ANASTATUS BOMBAX new species.

*Female*:—Length, 3.75 mm., excluding ovipositor which is extruded for a little less than a third of the length of abdomen and is brown-black at tip.

Metallic purple, the propodeum green, the head brassy; fore wings hyaline but with one moderately broad complete cross-stripe and an incomplete one, the latter broader, two thirds complete from most of postmarginal vein; hyaline stripe between them as broad as the second half-stripe, broader than the first stripe. Coxæ and hind legs concolorous, rest reddish brown, the tarsi whitish. Scape reddish brown, rest of antenna black. Segments 2-5 of abdomen incised at meson of caudal margin, 5 only slightly, others not deeply. Cephalic ocellus just tipping apex of the triangular scrobicular cavity whose lateral margins are carinated. Body scaly, scutellum densely shagreened, center of scutum subglabrous. Cephalic femur wide. Venation narrow, the postmarginal vein twice the length of the normal stigmal. Middle tarsi with distinct black teeth ventrad. Hind tibial spur single. Funicle 1 wider than long, club obliquely truncate, funicle 2 nearly thrice longer than wide, somewhat longer than 3 which is subequal to the pedicel and next longest; funicles 7-8 subequal, somewhat wider than long. Scutellum declivous. Runs to *racinei* Girault but differs in lacking the silvery band of abdomen near base, in bearing the distinctly extruded ovipositor, the reddish cephalic legs, in having funicle

2 longer than 3, the second stripe of fore wing somewhat narrower and more faded caudad, the nonpilose, subglabrous caudo-mesal part of scutum, the declivous scutellum, the much shorter cephalo-mesal triangular raised part of scutum, here scaly, in *racinei* densely shagreened like the scutellum. The head is shagreened, nearly as much as the scutellum. Axillæ shagreened, distinctly separated. Eyes nearly naked. In some specimens, the silvery band of abdomen is present, distinct.

The male has the first two pairs of legs (except coxæ) bright reddish yellow, the wings hyaline (a very obscure ovate spot from apex of stigmal vein), the postmarginal vein shorter, the scutum normal with faint complete parapsidal furrows, the head and thorax grass green, the pedicel and first four funicle joints reddish brown. Antennæ 11-jointed with one transverse, true ring-joint, the first funicle joint twice longer than wide, wider distad, longest, funicles 7-8 subquadrate, larger than the very short pedicel; club solid. Compared with type of *racinei*.

Described from fourteen males, twenty-eight females from an egg-case of a mantid, April 22, 1914 (G. F. Hill).

*Habitat*: Port Darwin, Northern Territory.

*Types*: No. Hy 2879, Queensland Museum, Brisbane, three females on a tag and male and female antennæ and a female hind leg on a slide with type *aristotelea*.

### 18. ANASTATUS MAXIMUS new species.

*Female*:—Length, 4.40 mm. Similar to *blattidifurax* but more robust and the ovipositor is distinctly but shortly extruded and reddish brown. Funicle 1 a little longer than 2 or 3. Tarsi reddish brown. Infuscation of fore wing deep, that at base distinct. Segments 2-4 of abdomen slightly incised at meson of caudal margin. Much more robust than *aristotelea*. Scutellum more densely sculptured than rest of thorax.

Described from one female captured in the forest, September 22, 1914.

*Habitat*: Capeville (Pentland), Queensland.

*Type*: No. Hy 2880, Queensland Museum, Brisbane, the female in alcohol with type of *Atoposoma unguttatipes* Girault.

## DIAGNOSTIC TABLE OF THE AUSTRALIAN SPECIES OF *ANASTATUS* MOTSCHULSKY.

### FEMALES.

The wings are perfect and of full length. Compare *Eupelmus multicolor*.

1. Wings with two distinct fuscous cross-stripes; abdomen with a distinct silvery band near base (rarely the second wing stripe is incomplete caudad).

Body varicolored.

Fore wings with two complete cross-stripes. Scape obelavate.

Honey yellow, the head and abdomen metallic; scape dark metallic green at proximal half, the rest together with the pedicel and funicle 1 reddish yellow; funicles 2-5 silvery white; rest of antenna black; an intervening part of ovipositor valves honey yellow; funicle 2 thrice or more longer than wide. See description . . . . . *tricolor* Girault.

Fore wings with the second stripe incomplete caudad, the first narrower, one third length of hyaline between the two; scape normal.

Orange yellow; center of vertex, most of scutum, middle of pronotum and the mesoventer and propodeum metallic green; abdomen purple, with a silvery band near base; scape pale; antennæ otherwise black except joints 3-6 of funicle which are silvery white. Fore wing with one cross-stripe and a triangular fuscous area from stigmal vein. See description . . . . . *pasteuri* Girault.

Body dark metallic green or purple. Scape normal.

Scape nonmetallic, rufous.

Valves of ovipositor barely extruded, their tips white .. .. *racinei* Girault.

Valves of ovipositor shortly extruded, their tips brownish black .. .. ..  
*bombax* Girault.

Scape metallic, concolorous. Valves of ovipositor barely exerted.

Funicle 2 plainly longer than 3; tip of ovipositor not white. Hind tibia with two spurs; hyaline cross-band of fore wing plainly narrower than the first cross-stripe .. .. . *pipunculi* Perkins.

Funicle 2 nearly the same, the tip of ovipositor white; hind tibial spurs double; hyaline cross-band of fore wing subequal in breadth to the first cross-stripe .. .. . *aristotelea* Girault.

Funicle 2 subequal to 3. Tip of ovipositor white. Hind tibia with one spur; hyaline stripe of fore wing very narrow, plainly much shorter (over twice) than first fuscous stripe. Fore wings infuscated practically to tip ..  
*blattidifurax* Girault; compare *maximus* Girault.

II. Wings infuscated from bend of submarginal vein to apex of postmarginal, the infuscation with two oblique, opposite eye-spots.

Dark metallic purple, the scape rufous, the flagellum and legs concolorous; caudal margins of segments 2-5 of abdomen incised at meson; funicle 2 about two and a half times longer than wide. Tip of ovipositor whitish. Hind tibial spurs double. Caudal margin of segment 2 of abdomen silvery white. Front femur much swollen .. .. . *pentatomidivora* Girault.

The same but only segment 2 of abdomen is incised at meson of caudal margin .. ..  
 variety *nonexcisus* Girault.

III. Wings generally infuscated, without eye-spots or two distinct cross-bands.

Body dark metallic.

Fore wings stained from about base of marginal vein to apex.

Scape whitish.

Scape, tip of ovipositor, tips of tibiae and the tarsi whitish. Stigmal and postmarginal veins subequal; funicle 2 subequal to pedicel. Valves of ovipositor slightly exerted .. .. *nigripurpureus* Girault.

The same but valves of ovipositor extruded somewhat farther and all concolorous .. .. . *pax* Girault.

Scape reddish brown. Robust.

Distal third of caudal tibia yellowish white; funicle 2 thrice or more longer than wide, 6 quadrate; valves of ovipositor extruded for a fourth the length of the abdomen, dusky at tip, black at proximal third, rest white. Most of middle tibia brownish. Wings sooty .. .. .  
*frederici* Girault.

Fore wings with a dusky subrectangular blotch appended from whole of marginal and postmarginal veins. Scape concolorous.

Tips of tibiae and tarsi whitish; valves of ovipositor extruded for about a third the length of the abdomen, whitish, black at distal third .. .. .  
*splendidus* Girault.

The same but extruded part of valves of ovipositor black at base and tip, the rest whitish, the distal black longer than the proximal .. .. .  
*benthami* Girault.



## IV. Wings hyaline.

Legs, except coxæ, yellow.

A middle third of the valves of the ovipositor white; funicle 2 thrice longer than wide, 3 and 4 each somewhat shorter than it, distinctly longer than the pedicel .. .. . *boussingaulti* Girault.

Femora concolorous.

Abdomen with a silvery band near base.

Valves of ovipositor extruded for a third the length of abdomen, black; pedicel and funicles 1 and 2 white; funicle 2 longest, a little longer than the pedicel; middle tibiæ (except a dusky band below knees) and distal half of other tibiæ, white .. .. . *insularis* Girault.

Abdomen wholly concolorous.

Pedicel distinctly longer than any of the funicle joints.

Ovipositor not extruded.

Tarsi brownish; funicle 1 longer than wide, 3 and 4 longest; caudal tibiæ with two spurs. Abdomen depressed .. .. . *colopterorum* Girault.

Ovipositor extruded for a third the length of the abdomen.

Distal half of cephalic and caudal tibiæ, middle femur except upper and lower edges, middle tibiæ and the tarsi reddish brown; valves of ovipositor white centrally .. .. . *darwini* Girault.

## GENUS METAPELMA Westwood.

## 1. METAPELMA WESTWOODI new species.

*Female*.—Length, 4.25 mm., excluding ovipositor which is black and extruded for a length equal to seven eighths that of abdomen.

Dark æneous green, the fore wings infuscated from near base of stigmal vein nearly to apex, with a brownish stripe across from distal third of submarginal vein, narrower centrally and a longitudinal brownish stripe connecting the two infuscations. Cephalic and middle femora and tibiæ rich yellowish brown, also the cephalic tarsi; all coxæ and the hind legs dark metallic but the proximal fourth of hind tibia silvery white; middle tarsi black except proximal three fourths of first joint which is silvery white; middle tibial spur white; hind femur near base yellowish brown. Eyes only sparsely hairy. Hind tibial spurs double, distinct, the hind tibia and first tarsal joint compressed, very flat but only moderately broad. Scape metallic, dilated ventrad along distal half; pedicel subequal to funicle 1 which is distinctly longer than wide; funicles 2 and 3 elongate, twice the length of 1, subequal, each about five times longer than wide; 4 somewhat longer than 1, 5-8 shortening and widening, 7 quadrate, 8 wider than long; club oval, shorter than funicle 2. Middle tibiæ and femora distinctly longer than those regions of the other legs. The three ridges of scutum acute; axillæ rather narrowly meeting, with an oblique, bisecting ridge; whole body scaly. Postmarginal vein elongate, over thrice the length of the stigmal, a little longer than the marginal. Caudal wings with about twenty lines of discal cilia where widest. Proximal margin of distal infuscation of fore wing triangularly projected proximad at cephalic third. The triangular elevation of cephalic scutum narrow, much longer than wide. Pronotum and face hispid. Antennæ 13-jointed.

From one female taken in jungle, May 2, 1914 (A. P. Dodd).

*Habitat*: Tweed Heads (Tweed River), New South Wales.

*Type*: No. *Hy 2881*, Queensland Museum, Brisbane, the female on a tag; head, a hind leg and pair of wings on a slide.



## GENUS NEANASTATUS Girault.

Marginal and submarginal veins not differentiated, very long, the stigmal well developed, the postmarginal very long, thrice or more the length of the stigmal. A long oblique hairless line running cephalo-distad toward base of stigmal vein but not reaching it for some distance. Intermediate tibial spurs as long as the tarsi of these legs, stout, spiny, at apex ending in several stout spines. Scutellum with a broad base and a median groove. Antennæ 10-jointed, with one ring-joint, the club 2-jointed. Head subtriangular, only as wide as the greatest width of the thorax, the frons broad, eyes not large, not convergent, the genal sulcus distinct; mandibles tridentate. Antennæ inserted below the eyes. Ovipositor not exerted. Abdomen conic-ovate. Face convex.

**1. NEANASTATUS CINCTIVENTRIS** Girault. Female. Genotype.

Length, 2.75 to 3.50 mm.

Dark metallic green marked with bright lemon yellow as follows: Base of abdomen encircled with a band just out from base; scutum with a long rectangular area down its center; cephalic legs, intermediate legs except most of coxæ and coxæ of posterior legs; posterior femora and tibiæ and the distal four tarsal joints bluish to black, the distal joints of other tarsi black. Fore wings with a deep smoky subrectangular area under the venation, its middle at the stigmal vein. Eyes with very sparse pubescence. First funicle joint longest, the others shortening, the distal two subequal to each other and to the pedicel. Distal club joint subequal to first funicle joint. Head with dense, rather small thimble punctures. Thorax and abdomen polygonally sculptured. Antenna brownish yellow.

The types were captured by sweeping foliage of jungle growth along the banks of the Mulgrave River, near Gordonvale, March 30, 1913.

*Types*: No. *Hy 2882*, Queensland Museum, Brisbane, two females on tags (two pins).

The male is about similar to the female; its funicle joints are all somewhat longer than wide, distinctly longer than the pedicel. A male from forest, type locality, March 21, 1913. A rather common species. Also a pair, same place, April.

**2. NEANASTATUS DESERTENSIS** new species

*Female*:—Length, 2.50 mm.

Very similar to *aurivertex* Girault but differing in the following particulars: The prepectus is contrasting deep orange yellow; the lateral margins of pronotum are not metallic green but the caudal margin is so yet very lightly, not distinctly; the distal third of caudal femur is not yellow except ventrad but wholly metallic purple; the tip of middle tibiæ, distal part of middle tibial spur and the distal four tarsal joints of middle legs, are metallic purple; caudal knees and tibiæ wholly metallic purple, also caudal coxa at base; distal joint of caudal tarsus purple. Antennæ very hispid.

From one female taken in forest, April 15, 1914 (A. P. Dodd).

*Habitat*: Cloneurry, Queensland.

*Type*: No. *Hy 2883*, Queensland Museum, Brisbane, the specimen on a tag.

**3. NEANASTATUS AURIFASCIATUS** new species.

*Female*:—Length, 2 mm.

Dark metallic green, the abdomen, propodeum, mesopleurum and most of scutellum metallic purple, the abdomen with a rather broad golden orange band just out from base its caudal margin narrowly silvery white. Wings hyaline. Antennæ and first two pairs of legs honey yellow, the middle coxa mostly concolorous, the cephalic one so at base. Caudal legs wholly purple except trochanters, a minute spot just ventrad of knees and the tarsi which are white. Funicle 1 quadrate, slightly smaller than the pedicel; distal two or three funicle joints wider

than long. The same as the other species otherwise. Tarsi white. Differs from *reymondi* in having clear wings, the orange abdominal band and wholly yellow middle femur. Differs from *punctaticeps* in lacking the cross-groove at base of scutellum and the color of the abdominal band.

From one female taken in forest, April 8, 1914 (A. P. Dodd).

*Habitat*: Cloncurry, Queensland.

*Type*: No. Hy 2884, Queensland Museum, Brisbane, the female on a tag.

#### 4. NEANASTATUS FLAVIPRONOTUM new species.

*Female*:—Length, 2 mm.

Dark metallic green, the wings hyaline, the pronotum, tegulae, mouth and a little less than proximal fourth of abdomen dorsad, golden yellow; also the antenna and first two pairs of legs except intermediate coxae and intermediate femora slightly at base. Hind legs concolorous, their tarsi and the tibiae just below knees silvery white. Caudal margin of pronotum concolorous. Scutum and pronotum pilose, scutellum much less so. Occiput finely, circularly striate. Head densely punctate.

From one female caught by sweeping in forest, March 3, 1912.

*Habitat*: Thursday Island, Torres Strait.

*Type*: No. Hy 2885, Queensland Museum, Brisbane, the female on a tag.

#### 5. NEANASTATUS PUNCTATICEPS new species.

*Female*:—Length, 1.85 mm.

Metallic grass green, the scutellum, propodeum and abdomen dark purplish, the abdomen with a silvery white band around base. Wings hyaline. Cephalic and middle legs silvery white, the hind legs metallic purple, their tarsi white. Antennae yellow-brown, the distal three funicle joints wider than long, joints 1 and 2 subquadrate, shorter than the pedicel, the latter short; scape clavate; club conic-ovate. Head rather coarsely punctate, the scrobes absent but the scapes fit into an  $\Omega$ -shaped facial impression which is obtuse. Thorax very finely scaly, subpilose. Middle tibial spur armed with black teeth toward apex. Generic characters present.\*

From one female taken August 9, 1913 by sweeping in forest.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2886, Queensland Museum, Brisbane, the specimen on a tag; legs and antenna on a slide.

This is the only species of the genus with a distinct cross-groove at base of scutellum.

#### 6. NEANASTATUS AURIVERTEX new species.

*Female*:—Length, 2 mm.

Dark metallic purple, the vertex orange yellow, rest of head, pronotum except the lateral margins (lateral aspect), prepectus, propleura, proventer, middle legs, coxae, fore legs, hind trochanters, hind femora distad, hind tibiae proximad and the tarsi, bright lemon yellow. Head uniformly, rather coarsely punctate. A narrow yellowish band just out from base of abdomen. Occiput purplish across the middle; antennae orange yellow; pedicel shorter than funicle 1 which is longest, somewhat longer than wide; funicle 5 subquadrate, 3 and 4 a little longer than wide. First club joint the shorter. Ring-joint distinct. Hind coxa purplish above at base. Thorax scaly, with sparse pubescence on the long scutum, the scutellum with the median groove. Structurally like the genotype. Middle tibiae not armed with black teeth beneath. One mandible bidentate, the other with an inner angulation which does not form a distinct third tooth.

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\* As always unless particularly mentioned.

From one female taken by sweeping jungle growth along a forest streamlet, June 29, 1913.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2887, Queensland Museum, Brisbane, the female on a tag; head on a slide.

#### 7. NEANASTATUS PURPUREISCUTELLUM new species.

*Female*:—Length, 1.65 mm.

Golden yellow, the abdomen except a broad white band around base which occupies over proximal third, the scutellum, the propodeum, the mesopleurum (except cephalic margin), mesoventer and the hind legs except coxæ and tibiæ, dark metallic purple. The proximal silvery white base of abdomen with a narrow band of metallic purple at about middle. (Meson of scutum broadly from about cephalic fifth to caudal margin obscurely purplish, the broad mesal band dilating considerably caudad on each side to the lateral margins; this marking may be due to fading.) Thorax rather well-clothed with blackish pubescence; abdomen finely scaly. Head punctate as in the other species. Abdomen at tip above silvery white, the caudal margins of the segments straight. Hind tibial spurs double, one very small, the other large, both purple. Mandibles tridentate. Funicle 1 somewhat longer than wide, longer than the pedicel, 5 subquadrate, subequal to the pedicel.

From one female taken by sweeping jungle along a road, February 23, 1912.

*Habitat*: Rossville (Cooktown), Queensland.

*Type*: No. Hy 2888, Queensland Museum, Brisbane, the female on a tag; head and hind tibiæ on a slide.

#### 8. NEANASTATUS FLAVIMESOPLEURUM new species.

*Female*:—Length, 2.75 mm.

Deep orange yellow, the fore wing a little stained under the marginal vein; scutellum except lateral and distal margins, abdomen except a broad yellowish white band around base, dorsal edge of caudal femora and all of caudal tibiæ except tip, dark metallic purple. Funicle 1 one and a half times longer than wide, nearly twice the length of the pedicel, longest of the flagellum. Otherwise as in *purpureiscutellum*.

From one female caught by sweeping in jungle, July 28, 1913.

*Habitat*: Gordonvale (Cairns), Queensland.

*Type*: No. Hy 2889, Queensland Museum, Brisbane, the female on a tag.

A second female from the same place, April 2, 1914.

#### 9. NEANASTATUS INCONSPICUUS new species.

*Female*:—Length, 1.90 mm.

Differs from *punctaticeps* in lacking the cross-suture on scutellum and the first two pairs of coxæ are concolorous, the cephalic femora concolorous at base, the silvery band of abdomen very narrow. The middle legs are pale brown. From *reymondi* in the color of the legs and in having the hind tibiæ white at extreme base dorsad and the distal four tarsal joints of middle legs purple as in *punctaticeps*. From *aurifasciatus* in the coloration of the first two pairs of legs. Funicle 1 a little longer than wide; scape and pedicel dark purple, rest of antennæ dull yellow.

From one female caught in forest, May 15, 1914 (A. P. Dodd).

*Habitat*: Chindera (Tweed River), New South Wales.

*Type*: No. Hy 2890, Queensland Museum, Brisbane, the specimen on a tag with type *punctaticeps*.

**10. NEANASTATUS TRINOTATUS** new species.

*Female*:—Length, 2.70 mm.

Deep orange yellow, the lower face lighter, the wings hyaline; a conspicuous beehive-shaped marking on over caudal third of the mesopleurum and a moderate sized cross-stripe on dorsal abdomen a short distance before tip, jet black; these markings conspicuously contrasting. Two minute black dots on hind coxa above at base and on base of abdomen a narrow black cross-stripe and at about middle two minute black dots at each margin (dorsal aspect) in an oblique line. Sculpture as in *maximicorpus*. Thorax with black pubescence which is moderate. Funicle 1 longest, a little longer than wide. This species resembles in its gross marking *Leptomastix auraticorpus* Girault.

From one female taken March 5, 1914, sweeping jungle (A. P. Dodd).

*Habitat*: Cooktown, Queensland.

*Type*: No. Hy 2891, Queensland Museum, Brisbane, the female on a tag.

**11. NEANASTATUS REYMONDI** new species.

*Female*:—Length, 2.20 mm.

Nearly similar to *punctaticeps* but very dark æneous green, the head æneous coppery; the middle femur is dark greenish proximad. Differing specifically as follows: Funicle 1 and the pedicel are a little longer than wide; the fore wing is uniformly stained and the discal cilia proximad of the oblique hairless line is somewhat coarser (about 11 lines in each), the venation is darker; there is a distinct carina between bases of antennæ and no impressions for the scape while at base of scutellum there is no distinct cross-groove reaching from axilla to axilla as in *punctaticeps*.

Described from one female caught in forest, December 25, 1912.

*Habitat*: Capeville (Pentland), Queensland.

*Type*: No. Hy 2892, Queensland Museum, Brisbane, the specimen on a tag; wings and an antenna on a slide with slide type of *punctaticeps* Girault.

Dedicated to Paul Du Bois Reymond.

A common species on certain trees in the bed of Cape River (September).

**12. NEANASTATUS MAXIMICORPUS** new species.

*Female*: Length, 3 mm.

Very dark greenish blue, the wings hyaline; head except a metallic stripe across upper occiput, antennæ, pronotum mesad broadly at cephalic half, propodeum, distal margin of scutellum, hind femur and hind tibia, orange yellow; propleurum just above cephalic coxæ (the ventral border of propleurum rather broadly), first two pairs of legs and distal two thirds of hind coxa, bright lemon yellow; front femora and tibiæ more or less orange; caudal margin of segment 2 of abdomen very narrowly silvery white, the broad whitish band around base of the abdomen thus absent. Thorax and abdomen finely polygonally scaly, the thorax dorsad pilose. Second segment of abdomen at meson of caudal margin very slightly excised, the other segments practically straight there. Head densely, finely punctate. Funicle 1 longest, somewhat longer than wide.

From one female, taken March 6, 1914 in jungle (A. P. Dodd).

*Habitat*: Cooktown, Queensland.

*Type*: No. Hy 2893, Queensland Museum, Brisbane, the female on a tag.



TABLE TO THE SPECIES OF *NEANASTATUS* GIRAULT.

Body, excluding appendages, wholly metallic green (but the abdomen with a silvery or yellowish band near base).

Scutellum with a transverse groove at base. Band of abdomen silvery.

Wings hyaline; cephalic and middle legs silvery white; joints 1-2 of funicle subquadrate, shorter than the pedicel. Grass green .. .. *punctaticeps* Girault.

Scutellum without such a groove. Dark metallic green.

Wings uniformly, very lightly stained; band of abdomen silvery; middle femur concolorous at base .. .. .. *reymondi* Girault.

Wings hyaline; band of abdomen golden orange. Middle femur all yellow .. .. *aurifasciatus* Girault.

Compare *inconspicuus* Girault.

Body excluding appendages, dark metallic green but marked with yellow. Abdomen with a silvery band more or less distinct.

Head concolorous.

Scutum with a long, rectangular yellow area down its center; cephalic and middle legs yellow except middle coxa; hind legs concolorous except tarsi. Fore wings with a rectangular smoky area against venation and with its middle at stigmal vein. Band of abdomen lemon yellow .. .. *cinctiventris* Girault.

Head more or less marked with yellow. Wings hyaline.

Head nearly entirely yellow (excepting a stripe across upper or middle occiput).

Pronotum mesad broadly at cephalic half, propodeum, distal margin of scutellum and hind femora and tibiae orange yellow; part of propleurum and first two pairs of legs, lemon yellow. Caudal margin of segment 2 of abdomen very narrowly silvery white. Funicle 1 longer than wide .. .. *maximicorpus* Girault.

Vertex orange yellow; rest of head, prepectus, pronotum except lateral margins, propleura, proventer, coxæ, middle legs, tarsi, fore legs, hind femur distad, hind tibiae proximad, lemon yellow .. .. *aurivertex* Girault.

The same but the pronotum with only the caudal margin narrowly metallic, the caudal femur all metallic and distal four joints of middle tarsi purple .. *desertensis* Girault.

Head nearly all green, the mouth alone yellow.

Pronotum, tegulae and a little less than proximal fourth of abdomen dorsad, golden yellow; first two pairs of legs yellow except middle coxa and middle femur a little at base. Hind tibia just below knee white .. .. *flavipronotum* Girault.

Body, excluding appendages, yellow marked with black or metallic.

Abdomen metallic except the silvery band near base.

Golden yellow; scutellum, propodeum, mesopleurum except cephalic margin, mesoventer and hind legs except coxæ and distal third of femur ventrad, dark metallic purple. Wings hyaline .. .. *purpureiscutellum* Girault.

Orange yellow; scutellum except lateral and distal margins, dorsal edge of caudal femur and all of caudal tibiae except tip, purple. Funicle 1 nearly twice the length of the pedicel. Wings a little stained under the marginal vein .. .. *flavimesopleurum* Girault.

Abdomen mostly yellow.

Deep orange yellow, the wings hyaline; caudal third of mesopleurum and a stripe across dorsal abdomen a short distance before tip, jet black. Two dots on hind coxa dorsad at base and a pair of marginal dots on abdomen at about middle .. .. *trinotatus* Girault.



